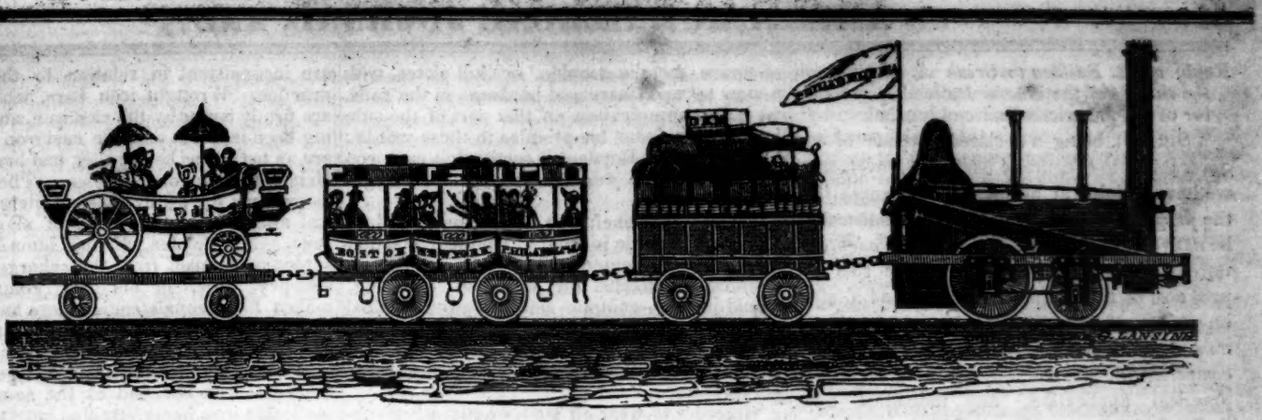

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, SEPTEMBER 28, 1833.

We have observed with much pleasure for several days past, that an experiment was being made in Broadway, between Barclay and Murray streets, to test the utility, and, as *we* believe, the *superiority*, of *Mr. M'Adam's* plan of forming the covering of our streets with fine *broken* stone, instead of the ordinary pavement. We do not entertain a doubt of their eventually superceding entirely the ordinary pavement. The superior convenience and comfort, as we conceive, of M'Adamized streets, when properly constructed, over the common pavement, will be found to consist in their smoothness of surface, and the ease with which they may be kept clean, as well as in their permanence. We perceive, however, that those who have the management of this "experiment" have adopted a plan *widely* differing from what we conceive to be the *true* one—so different, indeed, as to be *directly contrary* to the mode now in extensive use in England. Instead of *raising* the centre, a deep trench is dug, on the bottom of which is laid a covering of *flat stones* of from 20 to 50, or 70 lbs. weight, and over this is thrown a mass of broken stone, 10 or 12 inches in depth, and varying in size from three to *fifteen* ounces in weight.

This cannot certainly be considered as giving the plan, which they propose to follow, a fair test. No better location in the city, perhaps, could be found to show off the success of the plan than that selected by the Corporation in Broadway near the Park, and therefore a fair experiment should be made.

If John Loudon M'Adam were consulted upon the subject, he would say *dig no trenches*, but raise the centre from 3 to 5 inches, in a width of 30 feet, by throwing the earth from the sides, or from a distance. Let it be made uniform in its compactness and surface, that it may settle properly. Place the gutter stone, which should be of a thickness to correspond with the depth of broken stone to be laid on, and grooved or hollowed on the top, close beside the curb, after which put on about three inches in thickness of material, or broken stone, the largest of which should not *exceed six ounces in weight*. Let this be laid on of equal thickness, and then made compact with a roller—cast iron, if you please—which will give a uniform surface. Then put on another and another coat of stone, broken fine as before, and roll it down, until the covering is 10 or 12 inches in thickness, which will be found *ample for all purposes*, provided it has been *properly* managed in laying it on.

The stone should be broken so fine as to form, after a little use, a solid mass; so much so as to become impervious to water, which will, if permitted to filter through, surely cause the large stone at bottom to settle, and the surface, of course, to become uneven. A good road may probably be made upon the present plan, but it will cost double, and still not be as good as a road built after the rule laid down by Mr. M'Adam. We trust now a beginning has been made, to do away with pavements, that the measure will be carried into full operation, that our citizens may be able to judge for themselves of its utility and convenience.

The communication from Mr. Bulkley, which will be found in this number of the Journal, has been several weeks in our possession. It has been delayed in consequence of having other matters on hand, which we deemed of more importance to our readers than the continuation of a controversy, in which the main subject has in a great measure been lost sight of.

We are deeply sensible of the importance, to the Journal, of a free discussion of the merits of the various modes of constructing Railroads, in its columns, and would, therefore, suggest to those who favor us with a description of their inventions, or with their views of the inventions of others, the importance of avoiding personalities. An argument, to sustain which personal reflections are necessary, is hardly worth the ammunition; and, aside from the unfavorable influence it has upon the success of the Journal, we are unwilling to be the medium of a controversy, which, when thus carried on, can be productive of no beneficial results.

Lexington, Sept. 13th, 1833.

To the Editor of the American Railroad Journal:

Dear Sir—I wrote to you a few days ago some further observations on the subject of Arches. If you have received that communication, and consider the matter worth a place in your Railroad Journal,* I must request you to have the kindness to add the following note at the bottom. Very respectfully, V. D. G.

Note.—The formula referred to above (as given in the 34th number of this Journal, page 531,) for determining the value of the *vertical axis* of the required ellipse, was by some inadvertence written wrongly in the manuscript. It should have been the following:

$$a = \tfrac{1}{2}p \times \frac{\left\{\frac{c'.2r+p+2ch}{2c'r+2ch}\right\}^{\frac{1}{3}}}{\left\{\frac{c'.2r+p+2ch}{2c'r+2ch}\right\}^{\frac{1}{3}}-1}$$

* See Railroad Journal, last number, page 593.

Active measures for the establishment of a railway between Southampton and London have been revived, with increased prospects of ultimate success. The project has been taken up with much spirit in London, and shares to the amount of $50,000 are said to have been subscribed by one house.

A discovery of considerable importance as connected with the production of steam, has just been made by the superintendent of one of the gas establishments in London. He has ascertained, says the Court Journal, that an excellent fuel may be provided in coke, gas, tar, and water, applied in particular proportions; and as the weight of this fuel is little more than one third of the quantity of coals requisite to produce the same result, it will no longer be difficult to establish communication by steam with India and other distant parts of the world, the great and indeed hitherto insuperable objection, the weight and bulk of the fuel, being now removed. Colonel Torrens, the Member for Bolton, some time since we understand took out a patent for a discovery of a locomotive power, still more astonishing than this, for his principle was a power derived from an article requiring so little bulk that a quart of the liquid would produce sufficient for the impulsion of a ship or carriage over fifty miles. The subtility of this article, however, is said to be such, that it cannot be confined within any known metal, and therefore the discovery is without beneficial result. There is no objection of this kind to the discovery above named,

Reply of R. Bulkley to Uriah A. Boyden, on the subject of the Guard Rail. To the Editor of the American Railroad Journal.

Sir,—It being a declared purpose of our *government* to encourage useful improvements, we have a right, at all times, to presume that the *people* protected by it will not, whether they be native born citizens, or citizens by *adoption*, unreasonably attempt to thwart the rise and progress of such improvements. And if, after an object of improvement becomes publicly *announced as accomplished, and approved of by competent judges*, and only awaiting events for practical application, any individual feels inclined to contest, in opposition thereto, he should *first satisfy himself* that he is *competent to the undertaking*—that he is *master* of the part of the subject he feels a desire to espouse; lest he should subsequently become possessed with the mortifying reflection of having failed to enlist any sensible, reflecting man, under his banner.

The 'New-York Patent Guard Rail,' composed of a malleable iron rod, or rods incased in cast iron, was announced as having been perfected and highly approved of by numerous scientific engineers; and it may be said to have been approved of by every individual who has minutely examined the rails. It was also announced that rails eight feet long, made on this principle, had been tested, as to strength, with bearers, or *supports*, eight feet apart; that at a single bearing, in the middle of the rail, *ten tons* were applied without affecting the rail—being about four times the weight that would be required in use. And that the respectable founder, in this city, who applied the weights, gave as his opinion, that *twenty tons*, at a single bearing, would not break them. Yet, even after such announcement, and by a more scientific description, Mr. Uriah A. Boyden, of Lowell, Massachusetts, who had *never seen the rails*, appeared, by hostile communication in your Journal, in discussion of the possibility of perfecting that which had already been perfected, and perfected, too, in a most satisfactory manner.

How far Mr. Boyden was master of the part of the subject he espoused, may be inferred by reference to the record of his *conclusions*—the fallacy of which may be understood by quoting one or two, out of the many contained in the various columns of your Journal, comprised in his communications, as, for instance, on the subject of the difference of contraction and expansion, between malleable iron and cast iron. His *conclusion*, following his premise, is contained in these words: 'Hence,' he stated, 'the wrought iron bar may be nearly or quite torn asunder, without any extraneous force being applied to the rail.' This, too, he must have understood as being effected while both were in a heated state; whereas, in practice, when both descriptions of iron are applied together, there is *no* difference in contraction and expansion perceptible. If there be any difference, the one becomes conformed to the other, while *both* are in a heated state; so that castings made on this principle are as *perfect* as if made entirely of cast iron. Besides, if there were, in fact, a difference, a wrought iron rod while in its heated state, say of one inch diameter and a foot long, instead of being 'torn asunder,' would bear being drawn down to a *thousand* feet in length, more or less, without even beginning to *tear it asunder*—hence the fallacy of his conclusion alluded to.

I will quote one more of his, assumed to be, cogent conclusions—it being on the subject of the difference in the wear between malleable iron and cast iron rails. In my description of the manufacture of rails, on which Mr. Boyden's communication was predicated, is stated the 'use of entire metalic moulds,' or chill plates, with a view to cause increased hardness in the rails. In his communication on that part of the subject, he concludes his premise in these words: 'But (says Mr. Boyden) it seems that cast iron wears off about *five times* as fast as wrought iron.'

Such is his conclusion, placed on record in a page of a public journal? I forbear remarks which such a sentence, and such sentences, manifestly intended for effect in opposing, would justify—common sense, in any individual who examines the subject, will determine the merited award. The absurdity of his said conclusion will forcibly appear in the following paragraph:

'In order to wear off iron, or any other substance, it requires substance to come in *contact*, by which one frets off the other. It is but a few days since we were informed, through the public prints, that a culprit, under sentence of death, made his escape from prison by fretting off, or sawing off, malleable iron bars with a *spoon:* we have often had accounts of prison bars being fretted off by a knife, by watch springs, and by various other instruments; and with a single fine-toothed saw—such as used by carpenters—many malleable iron railroad bars might be severed. Such saws are frequently used for the purpose of severing pieces of malleable iron; whereas, perhaps, a single cast iron rail, cast on a chill, as proposed, would resist the effect of a thousand, more or less, of such saws, or other instruments.'

The effect can be too easily ascertained, by experiment, to render it necessary to rely on the speculative conclusions of Mr. Boyden, or other writers of a similar class.

And, having touched upon the rationality of Mr. Boyden's conclusions, I will now allude to the *principle*—the principle by which he has manifestly been actuated, in the course of his hostile remarks on this subject: I allude particularly to the impression he, in his determination to oppose, intended to convey, by *knowingly* perverting extracts, by attributing to Mr. Wood, an eminent and impartial author, expressions made by another individual, which expressions, from their extreme partiality and flat denial of the truth of observations of respectable engineers, were calculated to *substantiate*, if undetected, part of Mr. Boyden's statements in his communications on this subject, but they were also calculated, seriously, to affect the respectability of Mr. Wood as an author. In my reply I directed his attention to this quotation, presuming it to have been an error; and in his next succeeding communication I was surprised to learn that it was *intentional*. 'I (he says) *knew* it was a quotation from Stephenson.' He has so put it on record, and he may now give reason after reason, since detected, and admitted, if he chooses.

In Mr. Boyden's last communication he says much on a new subject, it being the subject of *consistency;* but before replying to it, as a subject, I propose to use it in explanation of his many inconsistencies, although, as I remarked in my last communication, 'I see no use in explaining or pointing out errors to that description of writers;' others, however, may view the subject in its proper light.

I did state in my first reply to Mr. Boyden, that 'his statements were inconsistent with Mr. Sullivan's.' Each of them commented on the same part of the subject, while each were aiming, eagerly aiming, at opposition—each giving his own reasons for condemning or undervaluing the object in question. Therefore, it being in allusion to the incasing of a wrought iron rod with cast iron, I need not again quote their premises; but the sequel, according to Mr. Boyden, is—'Hence the wrought iron bar may be nearly or quite torn asunder, without any extraneous force being applied to the rail;' and the sequel, according to Mr. Sullivan, is—'It will be *loose in the bore*;' whereas they are not only inconsistent in relation to each other, but *both* are wrong in their conclusions—both are inconsistent in relation to the effect in practice. Wrought iron bars, while incased, are firmly bound by the cast iron, and after having been incased, and the cast iron broken off, are as perfect as before they had been so used. Hence their inconsistencies. These conclusions were drawn by those writers, with special allusion to my method of manufacturing rails. Mr. Boyden, finding himself foiled in screening himself from this charge of inconsistency, now, in his last communication, makes his inconsistencies more and more apparent: he states, 'If Mr. Bulkley can conceive of a malleable iron bar being within a hole in a cast iron bar, the hole being larger than the malleable iron bar, and at the same time the malleable iron being strained longitudinally, he will be able to perceive that Mr. Sullivan's and his (Mr. Boyden's) statements can both be true.' In reply to this I will first state, that I do think it a most singular proposition for an opponent in argument to even hint to his antagonist to conceive of a changed object—an *imaginary* object—merely to screen that opponent from the absurdity of his own conclusions; yet the *absurdity* of his proposition exceeds that of his conclusions, if possible. He might, with equal rationality, have said, 'conceive of the materials for a ship being fastened together by bolts of *half an inch* diameter, in holes of an *inch* diameter,' as to speak of drawing or straining a bar of iron longitudinally by the effect of a surrounding object, the *orifice* in the surrounding object being at the 'same time *larger* than the malleable iron bar'—thus showing his conclusions to be *consistent with impossibilities*. And then he speaks of 'conceiving of a malleable iron bar being *longer* than the cast, and its *ends larger* than the calibre of the cast bar:' the idea of *thus* forming a rail is as ridiculous as his conclusions, to which I have adverted.

And as to that word '*consistency*,' in which Mr. Boyden has so much exposed himself, I could, taking his three communications collectively, point out more *inconsistency* than in any equal extent of writing I have ever before read.

And he has so far become entangled by his own errors and misrepresentations, that he has now, as I before stated, not only alluded to a 'changed object,' a rail of different construction from the one he began commenting upon, but in his last communication has attempted to change the definition of a word,—that important word '*consistency*,' so as to make *that* also comport with his writings. Such readers of your journal as have read his last communication casually, may have passed the (*his*) new definition of the word '*consistency*,' unnoticed. At first glance, when noticed, his exposition in lexicography seems to put lexicographers to the blush; for, according to Mr. Uriah A. Boyden, those lexicographers who have heretofore been undoubted as to correctness, can no longer be deemed to be, or be deemed to have been, *masters* of the English language; for Mr. Boyden states that 'every *master* of the English language knows the word *consistency*, as applied to writings, signifies that the parts agree, or stand together, or that it is not self-contradictory; and he adds, that 'it *never* implies that the writing is either *true* or *false*, or that it either *agrees* or *disagrees* with any thing not stated in the writing.'

The absurdity of *this* is only equalled by another in Mr. Boyden's second communication alluded to in your Journal, page 434, third column; wherein it alludes to *his* having stated, that every *intelligent* engineer had now become satisfied as to a specific point; when, in point of *fact*, perhaps not one engineer in a hundred, or a thousand, knew even the outlines of the subject in question; and perhaps in every instance, those engineers, many of whom rank in the first class, who had examined the object to which he alluded, declared their impressions to be directly the *reverse* from what *he* had stated. I alluded to this in my reply as an absurdity on the part of

Mr. Boyden; could it not with propriety be called inconsistent with the fact? If so, it implies that the writing is false. If this view of it be correct, it might be compared to the "killing two birds with one stone," as I advert to one of his absurd or inconsistent statements, to prove the inconsistency of the other in allusion to the true definition of the word consistency; and the very definition he has above given is self-inconsistent, for it does disagree with things not stated in his writing. It disagrees with the publications of lexicographers, which publications are "things" not *stated* in his writings; and *his* definition may with propriety be called inconsistent with theirs, it being contradictory to theirs. Therefore, having quoted Mr. Boyden's definition above, I will now quote the definition by lexicographers, namely, *consistent*—"not contradictory, not opposed;" *consistency*—"agreement with itself, or with any other thing." And *their* definition of the word *inconsistency* is as follows: "absurdity in argument or narration, incongruity"; also of the word *inconsistent* is as follows: "incompatible, not suitable, incongruous, contrary, absurd." This contradiction to *his* definition shows the extreme absurdity of his declaration of what every master of the English language knows, when perhaps every school boy of common understanding would comprehend the fallacy of his definition.

The idea conveyed in the last clause of Mr. Boyden's definition of the word "consistency" is of a most preposterous description. He says "it never implies that the writing is either *true* or *false*." Query: if Mr. Boyden makes false quotations from the writings of others, which he has *admitted* knowingly to have done, is it not "inconsistent" with *truth*? Once more as to his definition of *inconsistency*, as I wish him to understand his errors: he says, "it," meaning consistency, "never implies that the writing is either true or false; or, that it either agrees or disagrees with any thing *not stated* in the writing." Query: suppose two men attempt to describe a specific thing, both give a *wrong* description, and each *disagrees* with the other, would not their writings be deemed to be *inconsistent* with the nature of the thing they had attempted to describe? and would not their disagreed writings alluding to that specific thing be inconsistent with each other, although neither had mentioned the other in his writings?

I am at a loss to account for the desire manifested by Mr. Boyden to misrepresent in the manner he does. In his last communication he says, 'Mr. Bulkley in his last reply to me *denies* having accused me of inconsistency in my writings;' whereas I did not state any such denial. The denial I did state was of a different nature; it alluded to a *previous misstatement* of his, which misstatement of his charged me with saying what I did not say; and 'I *denied* having written any such words;' and I added, that the words which he attributed to me as being the author of, 'were original with himself.' (This previous misstatement of his, to which I have alluded, may be seen in the American Railroad Journal, page 434, first column, and is a kind of *deception*, in which no writer could be justified.] I have already written three times as much as I intended when I commenced, but I find it impossible with few words to do justice to the subject.

When considering that the proposed improvement in question was stated to have been predicated upon practical results, it would I think be difficult to point out an instance under similar circumstances, of hostile attacks of equal virulence; and when considering that such description of attacks are never made by persons who are disposed to encourage useful improvements, the moving cause of that opposition at first seemed mysterious, and led to the supposition that the assailants might have been impelled by strong feelings of ostentation, or from interested motives; the latter forms an, I do not say reasonable, excuse; and subsequently it has appeared that such interested motive did in a measure exist; for, in allusion to the rapid decay of wooden rails, one of the assailants having proposed an improvement in preserving timber for rails, stating that he had reason to think it could be done in such wise as to last thirty, perhaps fifty years;' and the other, in allusion to what I had stated as to the liability of wrought iron to decay and become weakened by crusts of rust, stated, that 'iron may in some degree be defended from rusting by having in combination a small quantity of some other substance.' Whenever, therefore, he may think proper to give a more *minute description* of that '*small*' quantity of some '*other*' substance, I trust he will not choose the subject of the 'Guard Rail' as a prelude to his description.

Mr. Boyden in his last communication had the impertinence to allude to my having slandered him; I detest the very idea of attempting to slander any individual. Were I to know of having written a sentence that should by disinterested judges be deemed to be slanderous, I would hasten to make acknowledgments. Mr. Boyden alludes to it in general terms; he is cautious not to allude to any specific sentence as containing it. I have been cautious that no sentence I have written should contain it; hence his extreme imbecility in making such a charge for shelter to his own errors. Had he have said that I had censured him, he would have made a just remark; I have charged him with making false quotations; he *has* admitted it. I have charged him with inconsistency, and with absurdity; it is therefore for the readers of your Journal to determine whether I have not shown those charges to be well founded in reference to his writings; and I did not make those charges in general terms, but *specifically*.

In the latter part of his last communication he has further conveyed ideas manifesting a degree of meanness which no judicious writer would be guilty of, in attempting, among other remarks, to convey the idea that the severity of my remarks were owing to a fear of being *foiled* in relation to an object in which I had spent time and money in perfecting; but he may consider himself as informed, that the true basis may be discovered in my writings, and that it will require conclusions more just than he has shown himself capable of forming, in his allusions to the 'tearing asunder' of heated wrought iron rods, and of hard cast iron wearing off 'five times' as fast as wrought, before there will be any danger of foiling an improvement predicated upon practical results. It were an insult to presume that the minds of readers, at this enlightened age, could be diverted by such absurdities. No, Mr. Editor, the severity of my remarks were involuntary, they were provoked by the, what most writers consider, unpardonable practice of making false quotations, together with his absurdities which I have above commented upon. A false quotation or misrepresentation put in type in a public journal may, in a subsequent number, be corrected, but this does not correct the *evil*; it may stand for ever in print, and the evil communication may be read and commented upon by persons who have no knowledge of the existence of a contradictory communication.

No, sir; so far from my mind being so intently fixed in favor of this or any other improvement, however valuable, even could I gain an exclusive patent right to all the rails that will be required for all the roads that will be established in the United States for the next twenty years, I would not for it consent to continue an interchange of communications through a public journal, with any individual whose principles permit him to diverge from bounds of propriety.

I therefore appeal to you, as the editor of a public journal, which ranks, and very justly ranks, with the most respectable publications of the day, whether communications should be received and published unqualifiedly, from a man who now upon the columns of your Journal stands self-convicted of *knowingly* making *false quotations*, thus presenting himself *justly* an object for animadversion; and when his improprieties become distinguished each by its proper character, he calls it slander, instead of acknowledging his errors: slander, without alluding to any specific reason. He had none to allude to by which he could be justified, thus practising a principle in writing which it is desirable not to contend with.

Mr. Boyden having made three several communications, and I have replied to them all, the subject, apparently in all its bearings, is before the readers of your Journal, who now have an opportunity of judging as to the real object of attempting to oppose *speculatively* that which had satisfactorily been accomplished *practically*; and for a minute description of which, with engravings, readers are referred to the American Railroad Journal, Vol. II, No. 14, page 210; and for replies to its opposers, to the same volume, No. 18, page 276; No. 20, page 307; No. 23, page 354; No. 24, page 373; No. 28, page 434; in which are contained numerous extracts from publications of celebrated authors, alluding to practical results on the important subject of *Wooden Rails* and of *Metalic Rails* for railroads.

Respectfully, yours,

R. BULKLEY.

[For the American Railroad Journal.]

MR. EDITOR,—I am at a loss whether I understand, correctly, what is meant by traction, or the force of traction; for in your first volume, page 405, is a table by Mr. Telford, by which I understand, that on the same piece of road, with a coach of 18 cwt. and seven passengers, on an inclination 1 in 600, at a speed of 6 miles an hour, the force required was 111 lbs. and at 10 miles an hour, the force required was 128 lbs.; that is to say, on the given inclination the force required to move at the rate of ten miles an hour, compared with that required to move at the rate of six miles, was as 128 to 111, or, if the coach were moving at the rate of six miles, and you add to the whole force $\frac{17}{111}$, it will increase the speed to 10 miles an hour—showing a great *gain* by a rapid motion; but in No. 6, of vol. 2, you have published, from the Baltimore Gazette, an essay on Steam Carriages upon Turnpike roads, where the writer says, referring to the same table, "Thus it is proved that the force of traction on a turnpike road varies with the velocity; that is to say, the force required *to pass over one mile, or any given distance*, at the rate of ten miles per hour, is greater than that required to pass with the same load an *equal* hour *distance*, at eight miles per hour, and the resistance on *an equal space*, at eight miles per is greater than at six miles per hour;" being directly the reverse of the conclusion to which my understanding of the table led me, namely, showing a great *loss*, instead of a great gain, by rapid motion, as compared with a slower one. Will you, sir, or will some of your intelligent correspondents, do me the favor to decide which of us has the correct conclusion.

Mine is corroborated by a similar table in one of your numbers, from Major Long. By the late experiments in canal navigation, by subsequent remarks in the same article, from the Baltimore Gazette, and by the laws of matter and motion; for if a carriage were moving on a perfectly horizontal road, with any given velocity, say 50 miles an hour, and had *no* resistance from the atmosphere, or from friction at the axle, or from obstruction at the surface or otherwise, it would continue to move at the same velocity indefinitely. Therefore, on a *level* road, a carriage, whatever be its weight and lading, having attained a given velocity,

requires no more power to keep up that velocity than what is necessary to overcome the resistance from the atmosphere, from friction at the axles, and from obstructions at the surface.

You see that these views are calculated very strongly to confirm the opinion which you have heretofore published, on the advantages of large wheels at least on a level road,'[see No. 26, current Volume] and this is a matter of no small importance, for it is evident that a road can be made from the Cape of Florida, or from New-Orleans, scarcely varying from a level all the way to Norfolk, and probably to Philadelphia and New-York, by admitting curves which would be no disadvantage on a road of earth. In all the great West, also, roads can be made in various important directions, and of immense extent, without ever departing materially from a level.

You doubtless perceive that I have more enthusiasm than science, and I may remark that I have no scientific neighbors, who have sufficient interest in such speculations, to show me my errors, if they be errors; and their fallacy may be so plain that you will not willingly occupy your time with them. However, I venture once more to ask, as a great favor, that my mistake, if it be one, may be pointed out. It is a matter of course that I have great confidence in my own views, that they are correct; and if so, they are of great importance, and go far to show that a road of earth is better than a railroad, at least for one or two valuable considerations. Transportation can be much more rapid, and the carriages will be more durable and less liable to accident.

Suppose a carriage, with wheels 20 feet diameter, and 18 inch tire, each wheel weighing perhaps 3 tons, passing frequently over a well graduated road of common earth, is it not evident that such a road would soon be almost as smooth and as hard as iron! I am aware of the effects of severe frost, but my mind is principally directed towards the great south, and the great west, where frost occasions very little inconvenience. Let such a carriage set off from an elevation, and descend an inclined plane, sufficient to give it, by the force of gravity, the required velocity. a very small power will then be sufficient to keep up the motion, and its impetus will carry it up another inclination, where it is to discharge cargo, or take in coal and water, and whence it would have the advantage of a descending plane when again setting off.

A carriage with large wheels will have a smooth and regular motion, without trembling or jolting. And if it be true that the expenditure of steam, and consequently of fuel and water, is as the number of revolutions, then the conclusion is inevitably and very greatly in favor of such wheels, and a road of earth. But for the present I will not indulge myself or trouble your readers any further. C. O.

Virginia, Aug. 7, 1833.

On the Undulating Railway. By BENJAMIN CHEVERTON. [From the London Mechanics' Magazine.]

SIR,—Your correspondent, 'Junius Redivivus,' is a clever writer, but an unpractised thinker. He was evidently not brought up a lawyer, to examine both sides of a question. He will do better in time, but at present he is apt to take a single view of things, and, therefore, an incomplete and superficial one, if I may be allowed to say so without giving him offence. But I should be reprehensible in so saying if I did not give an instance in proof of my assertion. I take, therefore, his last communication respecting the undulating railway.

I beg, however, at the very outset, clearly to be understood that I do not contend for any advantages which this sort of railway is alleged to possess over the ordinary level one—not even in theory, much less in practice; but I limit myself to the assertion that 'Junius Redivivus' has not exhibited the fallacy upon which he says the projector has stumbled, nor proved the existence of one. Is he aware of what has been done in the case—of the nature of the experiment shown at the Adelaide street Gallery of Practical Science and Works of Art? A carriage, whose moving power was a spring, was wound up to the same tension in each trial, by traversing it backwards a given distance on the floor. If placed alternately on the level and on the undulating railway, it was found that it travelled a certain distance in the same time, although the extremity of the latter railway was raised six inches above the level of the former. Now, where is the fallacy of which 'Junius Redivivus' speaks? Is it in the *fact*? and would he say with an engineer, a friend of mine, that though he should see it he would not believe in it? All his arguments, indeed, go to prove that the thing is impossible; but on further consideration he may be inclined to suspect their relevancy to the subject he has taken in hand, rather than the accuracy of his sight. It may, however, be said that the fallacy lies in the inference drawn from these experiments as to the superior advantages of this new form of railway. It is admitted—but then why did not 'Junius Redivivus' apply himself to this point, detect the lurking error, and show that the experimental trials were not fairly instituted? Instead of this, he contents himself with general reasoning about the impossibility of power being self-generated, maintaining that 'what is gained by an accelerated motion down hill, is balanced by an up hill to ascend in turn;' that 'no more power can come out of a thing than that we put into it;' and with giving superfluous utterance to many more such truisms, about which, it is to be hoped, few of your readers need now to be instructed, except, perhaps, some two or three perpetual motion seekers.

I will myself become a 'schemer,' just to show 'Junius Redivivus' that all his arguments are thrown away, that they are altogether beside the question, by proving that they are equally applicable to the following as pretty a subject, *on paper*, as ever was seen. Let there be a series of axles elevated high above the ground, and placed at certain equal distances apart. They are to be actuated by a power sufficient to overcome their own friction on their bearings, and the resistance of the air to the motion of the carriage, &c. A swinging platform is to be suspended from each axle in the manner of a pendulum, and, at the extremities of the arcs which they describe, short roads are to be constructed in order to receive the carriage in its transit from one platform to the other. A slight sketch will explain my meaning better. (Sketch omitted.)

A B are axles; C D, platforms; F D, roads. On the arrival of the platform at E, the carriage, being on wheels, will, by its momentum, be carried over the road to the platform at C, and again be launched forward to its next stage, and so on in succession. Will 'Junius Redivivus' be so good as to point out any theoretic absurdity in this notable scheme, however preposterous it may be in a practical point of view. Unlike the undulating railway, its economy of power is acquivocable and undeniable, and yet it is equally open to all 'Junius Redivivus's' up-and-down-hill arguments, and which are in an equal degree irrelevant. If I were to say that the momentum of the platform and its carriage, acquired in the descent from D to F, was more than sufficient to carry it from F to E, I should be chargeable with the nonsense against which his arguments are directed; for 'the man should, indeed, be laughed at, who asserts that the power of a machine is multiplied by going up and down hill.' Nothing, however, of the kind is asserted, not even, as I understand, by the sanguine projector of the undulating railway, much less by its scientific friends; but it is contended, and, in reference to the scheme before your readers, with the full assurance of truth, that friction is diminished, and power, therefore, saved, but not multiplied, as 'Junius Redivivus' would have it. That there is less friction in this pendulum mode of conveyance than on a common railway, is evident from the circumstance of its being confined to a trifling motion of the axles in their bearings during the passage of the load through the much greater space of the arc, D E. Not that the diminution of the friction would be exactly in this proportion, for the wheels of the railroad carriage would have to be taken into the account. The case assimilates to that of a large wheel and a small one, and the saving would be in the proportion of the ratio of the pendulum rod and the radius of its axle to the ratio of the carriage wheel and its axle. The advantage here spoken of is unquestionable; but whether there would be less friction on an undulating than on a level railway, is a debateable point, and 'Junius Redivivus' should have combatted the affirmative instead of fighting a man of straw. He should have shown that friction would not be diminished at any part of the curve, or, admitting a diminution at any place or places, he should have instructed us how it would be compensated by an excess of friction. I need not say where or how—that is for 'Junius Redivivus' to do. The writer in the Athenæum is certainly wrong—not so much from taking an incorrect as an incomplete view of the subject. He has omitted all consideration of the centrifugal force that is generated, and which much influences the result. It may here be asked, how, then, did the experiments exhibit results apparently so much in favor of the undulating railway? I cannot enter upon this point, as I have not investigated or even seen them; but there is no doubt that it arose principally, if not wholly, from the inertia of the carriage having been overcome by an extraneous force in the one case and not in the other. The projectors doubtless considered the experiment to be a fair one, but I hope they will not allow themselves to be self-deceived to their own bitter cost.

There is a sort of paradox connected with the subject, which it may be worth while to mention here, especially as I am inclined to think it is at the foundation of those fallacious views which the projectors and supporters of this scheme entertain. Among the latter are some whose eminence and position in the scientific world should have kept them from drawing crude and hasty conclusions. I have said that the axles B A, &c. are to be actuated by a power sufficient to overcome their own friction, the resistance of the air, and that opposed to the passing of the carriage over the roads D E, &c. Now, without further application of power, no progress can be made; but yet without any continual supply of it, as locomotion proceeds, and simply by a single additional effort in the first instance, effected by the descent of the machine from D to F, not only will the distance D E be accomplished, but another and another, even unto the world's end. That is to say, the initial force, though only just competent to produce motion of a given velocity, is effective for its prolongation at the same rate to any distance, or for any length of time. And this is true, not only of the present scheme, but also of the undulating railway. Oh! it is absurd, says 'Junius Redivivus,' and begins immediately to smell perpetual motion. He must remember that, by the terms of the proposition, all hindrance is provided against; the motion therefore, is unimpeded, and no reason can be assigned why it should cease after it is once commenced. The paradox is only in the way of putting the case, for the like may be said of all machinery and moving bodies. It is probable, however, that some confused notions on this head may have led the projectors of the undulating railway to imagine that they had herein an exclusive advantage over the level railway, and that the succession of descents maintains the moving force which is first generated, forgetting that such force needs no supply for its maintenance, and that all that is requisite for its unimpaired existence, is to provide that it shall not be exhausted by demands upon it to meet friction, &c. The same thing takes place on the ordi-

nary railway, though not precisely in the same manner. At first the impelling power of the engine is greatly in excess above the resistance, and constitutes an accelerating moving force up to the point at which it is no longer in excess, or when a uniform motion is obtained. The steam power is now wholly employed in overcoming resistance, and *not* in producing motion, otherwise an accelerated velocity would take place. The motion, therefore, results from the force imparted to, and residing in, the machine, and will continue unchecked for any time or distance, if that force is not drawn upon for any other purpose. If it were an object of any moment to shorten the time in imparting to a carriage the inertia of motion, this may be obtained by a commencing inclined plane on a level railway, as well as on an undulating railway; but that any after advantage can be procured by a succession of them is wholly a mistake.

In connection with this subject and the beforementioned place of exhibition, I beg, in conclusion to draw attention to Mr. Saxton's very ingenious and original mode of propelling a carriage on a railway. It is a reversal in practice of the principle embodied in the windlass of unequal diameters.

I am, sir, yours, &c.

BENJAMIN CHEVERTON.

P. S.—Verily, our coachmakers are wonderfully ignorant of 'the application of the principles of science:' they have not gone deep in their studies, or 'Junius Redivivus' would not have been obliged to tell them that a plate of iron was stiffer placed on its edge than when laid flat. His scientific expedient of accommodating the tension of carriage springs to their load, 'by supplying the absence of flesh and blood by weights conveniently arranged, just as a ship takes ballast on board when her cargo is discharged,' reminds me of a mode of travelling which I noticed in Spain. Two persons being mounted on a mule, one on each side, the lighter pannier was balanced against the other with a load of stones. When 'Junius Redivivus' wrote this remark, 'that no more power can come out of a thing than is put into it,' did it not remind him of his own proposal to employ a steam engine to work an air-pump, for the purpose of having air-guns instead of steam artillery? Surely he too is not 'one of those numerous, unthinking people, who believe that, by making a simple machine complicated, they actually multiply their power,' or who imagine that they cannot produce a thing so well at first as they can at second hand.

These observations, as they are made in good part, so I hope they will be taken. They allude to mere specks, as it were, on the face of the sun, but which are blemishes notwithstanding.

THE PADDINGTON STEAM CARRIAGE COMPANY.—A steam omnibus, constructed for this Company, on the plan of Mr. Hancock, (says the London Mechanics' Magazine,) has at length made its appearance on the road between the City and Paddington. We saw it at work on Monday, Tuesday, and Wednesday last, and were very well pleased with the manner of its operation. It seemed to be as perfectly under the regulation of the steersman as any of the rival vehicles drawn by horses, went a good deal faster, as much so, perhaps, as the crowded state of the road would allow, and caused no annoyance by noise or smoke, to either bipeds or quadrupeds. In external appearance it differs little from an ordinary omnibus, and contains accommodations for exactly the same number of passengers. The part for the passengers is in front, the furnace in the rear, and the engine work (which occupies but a small space) between the two. The motive power is communicated by chains, and to one wheel only. The internal arrangements are, we believe, similar to those of the carriage made by Mr. Hancock, which plied for some time on the Stratford road, and is fully described in the Mechanics' Magazine for the 28th April, 1832. All that (apparently) now remains to be done, is to ascertain the average cost of this mode of conveyance, as compared with horse power; and this, of course, must be an affair of time. We trust the Paddington Company will act more openly by the public in this respect than previous speculators have done; and that they will make known the result of their experience, whatever it may be, without any mystification or evasion.

Since writing the preceding notice, we have received the following very frank and satisfactory letter on the subject, from a shareholder of the Company:—

SIR,—The London and Paddington Steam Carriage Company have tried and proved the effectiveness of their carriage, by taking it from Paddington to London-wall, and thence up Houndsditch, through Whitechapel (on market day), and on to Stratford and West Ham, and returning the same way back again; thus proving its capability of proceeding through crowded thoroughfares without inconvenience or liability to accident to the persons in the carriage or others. We have also on Monday begun to ply to and from Paddington to the City for hire; and intend for the present, continuing to go once or twice a day for the purpose of developing the wants of the road, and also such imperfections as may appear in practice, tn order that we may remedy them in the other carriages in progress of preparation. As soon as we have got two more carriages ready, the whole three will commence running in regular succession on this line of road, each carriage performing fourteen journeys to and fro per day, which is nearly the work of three omnibuses and thirty horses. During the early journeys of this single carriage, the fare will be one shilling. We do not, however, wish people to think we have commenced business as we mean to go on; for, at present, we are really only going for the purpose of satisfying the public of the safety and perfect practicability of this mode of travelling, and also of getting practice on the road, so that we may find out and apply every improvement that may be requisite. When the novelty of the thing has worn off a little, it is to be hoped that the road will not be so crowded with curious gazers, as it is every time we now go out, to the great prejudice of the speed of the vehicle, which it requires no small portion of skill and care on the part of the guide to steer with safety through the multitude of coaches, gigs, carts, drays, &c. that constantly beset its path. As it is, a second journey each day would, *at present*, become a perfect nuisance; but as soon as the road, by our frequent journeys, becomes less crowded, we shall, even with the one carriage, go two or three journeys occasionally, *perhaps more*, as soon as we are satisfied that we have adopted every improvement in strength and quality that daily practice may show to be necessary. The carriage has been open to public inspection on these premises for nearly three months: but, now that we go out daily, strangers are not admitted on any account, as it would interfere too much with the regular business of the establishment, and also with the progress of the other carriages.

I have now, sir, presented you with a few *facts* as to the present and future; and facts only, for I hate puffing and lies as much as you can do, in a great national matter like this. I do not know whether I am too sanguine or not, but I conceive we shall be able to satisfy the public that the important question as regards steam-travelling on common roads—*to be, or not to be*,—will now be solved.

I am, sir, your obedient servant,

CANDIDUS.

London, April 24, 1833.

ROTARY PUMP.—Messrs. Hale, Crane & Co. of this city, have obtained a patent for, and established a manufactory of, a new rotary pump, which promises to be a decided and valuable improvement. Two wheels are inclosed in a casing which corresponds with them in size, and which fits closely upon their sides. One of the wheels has, on its periphery, floats or wings, three in number, at equal distances apart—somewhat like cogs; the other wheel has cavities, into which the cogs or floats may fall; both wheels being so placed in their casing as to revolve together, and their peripheries forming a water joint. Through the ends or heads of the casing pass the shafts, which support and turn the wheels. There are two apertures in the casing, through one of which the water is drawn up by the suction produced by the motion of the floats as they recede from the wheel containing the cavities, and through the other the water is discharged, by the approach of the floats towards it. The pump may be put in motion by the hand or other power. One 14 inches in diameter, with the application of the power of two men, will raise and discharge 180 gallons per minute. A pump of this size is already in successful operation at the Simsbury mines in this state; and orders for others have been received from several States in the Union.—[N. Eng. W. Review.]

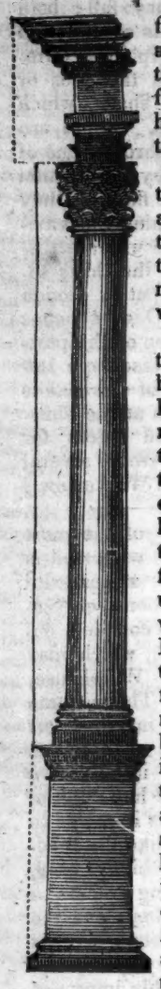
SILK MANUFACTURE.—One of the most gratifying exhibitions we ever witnessed is that of the silk-worm in all its stages, with the mulberry-leaves, eggs, cocoons, chrysalis, miller, &c., together with a complete domestic process of manufacture, which may be seen at the Agricultural Warehouse, North Market street, Boston. The machine which is there in motion was invented last winter, by Mr. Adam Brooks, of Scituate, Massachusetts, and a patent of it, which we have seen, was issued on the late 29th of June. It is an improvement, as it seems to us, of vast importance; for, unlike the Piedmontese Wheel, heretofore chiefly used, which only performed the reeling process, *it combines the reeling and twisting;* and the saving of labor is such, in consequence, that 150 skeins can be made in a day by one woman, and a little girl, to turn this improved wheel, as easily as 40 can by the old. This we learn from those who have tried both. One of the new machines is used in Connecticut, and another in New-York, besides those in the family of the ingenious inventor, who now devote their time, in a great measure, to this business.

Mr. Brooks is one of the Society of Friends. His wife, who superintends the wheel, and has paid some attention to silk-making for several years, had made frequent complaints of the labor lost by the old machine. Her husband doubted the practicability of amending it, and told her so in plain terms—but went to thinking, it seems, and in about three weeks produced this capital improvement. Mrs. Brooks says it was formerly a very hard day's work to make 30 skeins; she can now make 100 in ordinary hours. The silk is beautiful—as smooth as the Italian itself—and stronger than that. We challenge the strongest-fingered editor in the city to break a thread of it. If he succeeds he shall have one of the silk handkerchiefs, we engaged this morning—socks and all. —[Boston paper.]

MR. TREVITHICK.—We regret to learn that this distinguished engineer, who may justly be regarded as the father of steam locomotion in England, died on the 22d May at Dartford, in Kent, after a few days' illness. He was in his 67th year.

Of the Orders of Architecture. [Continued from page 536.]

Composite Order.—The Composite Order is the last of the five orders of columns: so called because its capital is *composed* out of those of the other orders.



It borrows a quarter round from the Tuscan and Doric; a double row of leaves from the Corinthian; and volutes from the Ionic: its cornice has simple modillions, or dentils.

The *composite* is also called the *Roman* and *Italian* order, as having been invented by the Romans; conformably to the rest, which are denominated from the people among whom they had their rise.

Most authors rank this after the Corinthian, either as being the richest, or as the last that was invented: Scamozzi alone places it between the Ionic and Corinthian, out of a view to its delicacy and richness, which he esteems inferior to that of the Corinthian; and, therefore, makes no scruple to use it under the Corinthian, wherein he is followed by M. le Clerc. The proportions of this order are not fixed by Vitruvius; he only marks its general character, by observing, that its capital is composed of several parts taken from the Doric, Ionic, and Corinthian: he does not seem to regard it as a particular order; nor does he vary it at all from the Corinthian, except in its capital. In effect, it was Serlio who first added the *composite* order to the four of Vitruvius, forming it from the remains of the temple of Bacchus, the arches of Titus, Septimus, and the Goldsmiths, at Rome: till then, this order was esteemed a species of the Corinthian, only differing in its capital.

The order being thus left undetermined by the ancients, the moderns have a kind of right to differ about its proportions, &c. Scamozzi, and after him M. le Clerc, make its column 19 modules and a half; which is less by half a module than the Corinthian. Vignola makes it 20, which is the same with that of his Corinthian; but Serlio, who first formed it into an order by giving it the proper entablature and base, and after him M. Perrault, raised it still higher than the Corinthian.

This last does not think different ornaments and characters sufficient to constitute a different order, unless it have a different height too; agreeably, therefore, to his rule of augmenting the heights of the several columns by a series of two modules in each, he makes the *composite* 20 modules, and the Corinthian 18; which, it seems, is a medium between the porch of Titus and the temple of Bacchus.

M. Perrault, in his Vitruvius, distinguishes between composite and composed order. The latter, he says, denotes any composition whose parts and ornaments are extraordinary, and unusual; but have, withal, somewhat of beauty, both on account of their novelty, and in respect of the manner or genius of the architect: so that a *composed* order is an arbitrary, humorous, composition, whether regular or irregular.

The same author adds, that the Corinthian order is the first composite order, as being composed of the Doric and Ionic, which is the observation of Vitruvius himself.

Gothic Architecture.—After having described the five Orders, it will naturally be expected that we should say something of the *Gothic* style; we shall therefore give a general view of the distinguishing features of this species of architecture.

The attention to Gothic architecture having only been lately revived, the practice has not hitherto been digested into so systematic an order as the Greek or Roman; and it is not a little extraordinary, considering that during the ages in which it was extensively practised, its operations were directed by men of science and literary habits, that no written rules have been discovered in the religious houses which were then the only depositories of knowledge. This has led Mr. Knight, and other men of observation, to assert, that each architect proceeded independently of rules, and worked in the manner which to him appeared best calculated to produce a striking effect, and that it was in consequence of the absence of determined rules, that this school rose to the degree of sublimity it attained. This is denied by other able and enlightened men, who have paid much attention to the subject, especially Dallaway, Milner, and Hawkins, who maintain, that although few arranged rules and proportions have been published in books, yet architects and workmen were constantly guided by known rules, agreeably to the prevailing mode. It is evident, although not so rigidly confined as the Egyptian, that the Gothic architects were fully as much limited as the Roman; for the contrast between the massy Norman style, and the latter, or florid Gothic, is not greater than what was produced by varying from the plainness, simplicity, and oblong forms of the ancient Greek temples, to the circular, delicate, and highly ornamented edifices of the late Roman.

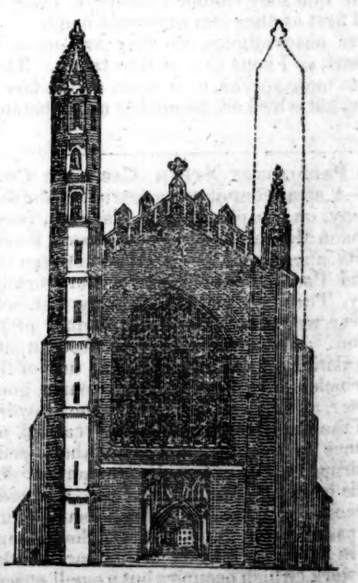
The Gothic style having been employed almost exclusively in edifices appropriated to the purposes of the Christian religion, the outlines of the ground plan have almost uniformly been a cross. In the Greek and Roman oblong temples, the ratio of the length and breadth was determined by the number of columns placed at nearly equal distances along the ends and sides, while that of the height was regulated by the diameter of the column; but in Gothic, where seldom any columns have been placed on the outside of the edifice, and the use of arches proving a relief from constraint within it, it is alleged that the proportion of the length to the breadth has been determined by triangles and squares. Of this, Mr. Hawkins, in his History of the Origin and Establishment of Gothic Architecture, (chap. 10,) has produced an early instance from Cæsar Cæsarianus, a celebrated architect of Milan, who, in an elaborate commentary annexed to his translation of Vitruvius, has explained the principles of Gothic architecture.

With regard to the form of the *essential parts*, they are mostly defined in the following description of the three orders of architecture, as given by Dr. Milner:

The *first order* is characterized during its formation—that is to say, till near the latter end of the 12th century,—chiefly by its acute arch (its pillars and other members being frequently Saxon); but after its formation, not only by the narrowness and acuteness of its arch, but also by its detached, slender shafts, its groining of simple, intersecting ribs, its plain pediments without crockets or side pinnacles, and its windows, which were either destitute of mullions, or have only a simple, bisecting mullion, with a single or triple trefoil, quatrefoil, or other flower, in the head of them. Of this order are the east end of Canterbury, the west end of Lincoln, and the whole of Salisbury Cathedrals, besides the transepts of York Minster and Westminster Abbey.

The *second order* is marked, not only by the fine turn of its perfect equilateral arch, but also by the cluster columns, being, for the most part, formed each course out of the same stone; by the elegant, but not over-crowded tracery of its windows and groining, by its crocketted pinnacles, tabernacles, and pediments, the latter of which, towards the conclusion of the fourteenth century, were made with an ogee sweep towards the arch they covered. To this order belong the nave of Westminster Abbey, the nave and choir of York Minster, the naves of Winchester, Exeter, and Canterbury Cathedrals, Wykeham's two colleges, St. Stephen's Chapel, &c.

The *third order* is known, not only by the flatness of the point of the arch, but also by its numerous, large, and low descending windows, together with the multiplicity and intricacy of its tracery; by its pendents from the roof; by the minuteness and profusion of its ornaments, both exteriorly and interiorly; by its fan-work and numerous shields and devices on the ceiling. To this order belong St. George's Chapel, Windsor, King Henry the Seventh's Chapel, Westminster, and King's College Chapel, Cambridge, of which the following is an eleva



tion, showing on one side the buttresses, the tower being supposed to be removed, and on the other the tower, which not only supplies the place of a buttress at the end, but assists also in supporting a considerable por-

tion of the thrust in the direction of the length of the chapel.

One of the finest features of Gothic architecture, and which, in many instances, still forms the most striking ornaments of our cities, is the tall, tapering spiral, which was first built of wood by the Normans, and afterwards in stone, early in the 13th century. In the course of the 14th and 15th centuries, they were greatly increased in number.

Babbage on the Economy of Manufactures.

[Continued from page 600.]

237. As connected with this subject, and as affording most valuable information upon points in which, previous to experiment, widely different opinions had been entertained, the following extract is inserted from Mr. Telford's Report on the State of the Holyhead and Liverpool Roads. The instrument employed for the comparison was invented by Mr. Macneill; and the road between London and Shrewsbury was selected for the place of experiment.

The general results when a waggon weighing 21 cwt. was used on different sorts of road, are as follows:

	lbs.
1. On well made pavements, the draught is	33
2. On a broken stone surface, or old flint road	65
3. On a gravel road	147
4. On a broken stone road, on a rough pavement foundation	46
5. On a broken stone surface, upon a bottoming of concrete, formed of Parker's cement and gravel	46

The following statement relates to the force required to draw a coach weighing 18 cwt., exclusive of seven passengers, up roads of various inclinations:

Rate of inclination.	At six miles per hour.	At eight miles per hour.	At ten miles per hour.
1 in 20	268 lbs.	293 lbs.	318 lbs.
1 in 26	213	219	225
1 in 30	165	196	200
1 in 40	160	166	172
1 in 600	111	120	128

238. The time in which the goods produced by any new factory can be brought to market and the returns realized, should also be well considered, as well as the time the new article will take to supercede those already in use. If the article is consumed in using, the new produce will be much more easily introduced. Steel pens readily took the place of quills; and a new form of pen would, if it possessed any advantage, as easily supercede the present one. A new lock, however secure, and however cheap, would not so readily make its way. If less expensive than the old, it would be employed in new work: but old locks would rarely be removed to make way for it; and even if perfectly secure, its advance would be slow.

239. Another element in this question which should not be altogether omitted, is the opposition which the new manufacture may create by its real or apparent injury to other interests, and the probable extent of the influence of that opposition. This is not always foreseen; and when anticipated, is often inaccurately estimated. On the first establishment of steamboats from London to Margate, the proprietors of the coaches running on that line of road petitioned the House of Commons against them, as likely to lead to the ruin of the coach proprietors. It was, however, found that the fear was imaginary; and in a very few years the number of coaches on that road was considerably increased, apparently through the very means which were thought to be adverse to it. The fear which is now entertained that steam-power and railroads may drive out of employment a large portion of the horses now used, is probably not less unfounded. On some particular lines such an effect may be produced; but in all probability the number of horses employed in conveying goods and passengers to the great lines of railroad, will exceed that which is at present used.

ON CONTRIVING MACHINERY.

240. The power of inventing mechanical contrivances, and of combining machinery, does not appear, if we may judge from the frequency of its occurrence, to be a difficult or a rare gift; and, amongst the vast multitude of inventions which have been produced almost daily for a series of years, a large part has failed from the imperfect nature of the first trials; whilst a still larger portion, which had escaped the mechanical difficulties, failed only because the economy of their operations was not sufficiently attended to.

The commissioners appointed to examine into the methods proposed for preventing the forgery of bank notes, state in their report, that, out of one hundred and seventy-eight projects communicated to the bank and to the commissioners, there were only twelve of superior skill, and nine which it was necessary more particularly to examine.

241. It is, however, a curious circumstance, that although the power of combining machinery is so common, yet the more beautiful combinations are exceedingly rare. Those which command our admiration equally by the perfection of their effects and the simplicity of their means, are found only amongst the happiest productions of genius.

To produce movements even of a complicated kind is not difficult. There exists a great multitude of known contrivances for all the more usual purposes, and if the exertion of moderate power is the end of the mechanism to be contrived, it is possible to construct the whole machine upon paper, and to judge of the proper strength to be given to each part as well as to the frame-work which supports it, and also of its ultimate effect, long before a single part of it has been executed. In fact, all the contrivance, and all the improvements, ought to be made in the drawings.

242. On the other hand, there are circumstances dependent upon physical or chemical properties, for which no drawings will be of any use. These are the legitimate objects of direct trials. For example: if the ultimate result of an engine is to be that it shall impress letters upon a copper-plate by means of steel punches pressed into it, all the mechanism by which the punches and the copper are to be moved at stated intervals, and brought into contact, is within the province of drawing, and the machinery may be arranged entirely upon paper. But a doubt may reasonably spring up, whether the bur that will be raised round the letter, which has been punched upon the copper, may not interfere with a proper action of the punch for the letter which is to be punched next adjacent to it. It may also be feared that the effect of punching the second letter, if it be sufficiently near to the first, might distort the form of that first figure. And if neither of these evils should arise, still the burs produced by the punching might be expected to interfere with the goodness of the impression produced by the copper-plate; and the plate itself, after having all but its edge covered with figures, might, from the unequal condensation which it must suffer in this process, change its form, so as to render it very difficult to take off impressions from it. It is impossible by any drawings to solve these difficulties, experiment alone can determine their nature. Such experiments have been made, and it is found that if the sides of the steel punch are nearly at right angles to the face of the letter, a very inconsiderable bur is produced; that at the depth which is sufficient for copper-plate printing, no distortion of the adjacent letters takes place, although those letters are placed very close to each other; that the small bur which arises may easily be scraped off; and that the copper-plate is not distorted by the condensation of the metal, and is perfectly fit to print from, after it has undergone this process.

243. The next stage in the progress of an invention, after the drawings are finished, and the preliminary experiments have been made, if any such should be requisite, is the execution of the machine itself. It can never be too strongly impressed upon the minds of those who are devising new machines, that to make the most perfect drawings of every part tends essentially both to the success of the trial and to economy in arriving at the result. The actual execution from working drawings is comparatively an easy task; provided, always, that good tools are employed, and that methods of working are adopted, in which the perfection of the part constructed depends less on the personal skill of the workmen, than upon the certainty of the methods they employ.

The causes of failure in this stage most frequently arise from errors in the preceding one; and it is sufficient merely to indicate a few of their sources. They usually arise from having neglected to take into consideration that metals are not perfectly rigid, but elastic. A steel cylinder of small diameter must not be considered as an inflexible rod; but in order to insure its perfect action as an axis, it must be supported at proper intervals. Again, the strength and stiffness of the framing which supports the mechanism must be carefully attended to. It should always be recollected, that the addition of superfluous matter to the immoveable parts of a machine is not accompanied with the same evil that arises when the moving parts are increased in weight; since no additional momentum is thus generated.

244. The stiffness of the framing of a machine draws after it another important advantage. If the bearings of the axis (those places at which they are supported) are once placed in a straight line, they will continue so, if the framing be immoveable; whereas, if the frame-work changes its form, although ever so slightly, considerable friction will immediately arise. This effect is so well understood in the districts in which our spinning factories are numerous, that in estimating the expense of working a new factory, it is allowed that five per cent. on the power of the steam-engine will be saved if the building is fire-proof. This saving arises entirely from the greater strength and rigidity of a fire-proof building preventing the long shafts or axes that drive the machinery from being impeded by the friction which would arise from the slightest deviation in any of the bearings.

245. It is quite a mistaken idea to suppose that any imperfect mechanical work is good enough for a trial. If the experiment is at all worth trying, it ought to be tried with all the advantages of which the state of mechanical art admits; for an imperfect trial may cause an idea to be given up, which better workmanship might have proved to be practicable. On the other hand, when once its success has been established with good workmanship, it will be easy to ascertain that degree of perfection which is necessary for its due action.

It is partly owing to this circumstance, the *imperfections of the original trials*, and partly owing to the gradual improvement in the art of making machinery, that many inventions which have been tried, and have been given up in one state of art, have, at another period, been eminently successful. The idea of printing by means of moveable types had probably suggested itself to the imagination of many men conversant with impressions taken either from blocks or seals. We find amongst the instruments discovered in the remains of Pompeii and Herculaneum, stamps for words formed out of one piece of metal, and including several letters. The idea of separating these letters, and of recombining them into other words, for the purpose of stamping a book, could scarcely have failed to have occurred to many: but it would almost certainly have been rejected by those best versed in the mechanical arts of that time: for any workman of those days would have instantly perceived the impossibility of producing many thousand pieces of wood or metal fitting so perfectly, and ranging so uniformly, as the types or blocks of wood used in the art of printing.

The principle of the press which bears the

name of Bramah was known about a century and a half before the machine, to which it gave rise, existed; but the imperfect state of mechanical art in the time of its inventor, would have effectually deterred him, if it had occurred to his mind, from attempting to apply it as an instrument for exerting force in practice.

These considerations prove the propriety of repeating, at the termination of intervals, during which the art of making machinery has undergone any great improvement, the trials of methods which may have previously failed, although they were founded upon just principles.

246. When the drawings have been properly made, and the machine has been well executed, and when the work it produces possesses all the qualities which were anticipated, still the invention may fail; that is, *it may fail of being brought into general practice.* This will most frequently arise from the circumstance of its producing its work at a greater expense than that at which it can be made by other methods.

247. Whenever the new or improved machine is intended to become the basis of a manufacture, it is essentially requisite that the whole expense attending its operations should be fully considered before its construction is undertaken. It is almost always very difficult to make this estimate of the expense; but the more complicated the mechanism, the less easy is the task; and in cases of great complexity and extent of machinery, it is almost impossible. It has been estimated roughly, that the expense of making the first individual of any newly invented machine will cost about five times as much as the construction of the second; an estimate which is, perhaps, sufficiently near the truth. If the second machine is to be precisely like the first, the same drawings and the same patterns will answer for it; but if, as usually happens, some improvements have been suggested by the experience of the first, more or less of these must be altered. When, however, two or three machines have been completed, and many more are wanted, they can usually be produced at much less than one-fifth of the expense of the original invention.

248. The arts of contriving, of drawing, and of executing, do not usually reside in their greatest perfection in one individual; and in this, as in other arts, *the division of labor* must be applied. The best advice which can be offered to a projector of any mechanical invention, is to employ a respectable draughtsman, who, if he has had a large experience in his profession, will assist in finding out whether the contrivance is new, and can then make working drawings of it. The first step, however, the ascertaining whether the contrivance has the merit of novelty, is most important; for it is a maxim equally just in all arts, and in every science, that the man who aspires to fortune or to fame by new discoveries, must be content to examine with care the knowledge of his contemporaries, or to exhaust his efforts in inventing again what he will, most probably, find has been better executed before.

This, nevertheless, is a subject upon which even ingenious men are often singularly negligent. There is, perhaps, no trade or profession existing in which there is so much quackery, so much ignorance of the scientific principles, and of the history of their own art, with respect to its resources and extent, as is to be met with amongst mechanical projectors. The self-constituted engineer, dazzled with the beauty of some, perhaps, really original contrivances, assumes his new profession with as little suspicion that previous instruction, that thought and painful labor, are necessary to its successful exercise, as does the statesman, or the senator. Much of this false confidence arises from the improper estimate which is entertained of the difficulty of invention in mechanics; and it is of great importance, to the individuals, and to the families of those who are thus led away from more suitable pursuits, the dupes of their own ingenuity and of the popular voice, to convince both them and the public that the power of making new mechanical combinations is a possession common to a multitude of minds, and that it by no means requires talents of the highest order. It is still more important that they should be convinced that the great merit and the great success, of those who have attained to eminence in such matters, was almost entirely due to the unremitted perseverance with which they concentrated upon the successful invention the skill and knowledge which years of study had matured.

PROPER CIRCUMSTANCES FOR THE APPLICATION OF MACHINERY.

249. The first object of machinery, and the chief cause of its extensive utility, is the cheap production of the articles to which it is applied. Wherever it is required to produce a great multitude of things, all of exactly the same kind, the proper time has arrived for the construction of tools or machines by which they may be manufactured. If only a few pairs of cotton stockings should be required in a country, or in circumstances in which it is impossible to purchase them, it would be an absurd waste of time, and of capital, to construct a stocking-frame to weave them, when, for a few pence, four steel wires can be procured, by which they may be knit. If, on the other hand, many thousand pairs were wanted, the time employed, and the expense incurred, in constructing a stocking-frame, would be more than repaid by the saving of time in making that large number of stockings. The same principle is applicable to the copying of letters: if only three or four copies are required, the pen and the human hand furnish the cheapest resource; but, if hundreds are called for, lithography may be brought to our assistance; and if hundreds of thousands are wanted, the machinery of a printing establishment is the most economical method of accomplishing the object.

250. There are, however, many cases in which machines or tools must be made, where economical production is not the most important object. Whenever it is required to produce a few articles—parts of machinery, for instance,—which must be executed with the most rigid accuracy or be perfectly alike, it becomes nearly impossible to fulfil this condition, even with the aid of the most skilful hands. In such circumstances, it is necessary to make tools expressly for the purpose, although these tools should, as frequently happens, cost more in constructing than the things they are destined to make.

251. Another instance of the just application of machinery, even at an increased expense, arises where the shortness of time in which the article can be produced has an important influence on its value. In the publication of our daily newspapers, it frequently happens that the debates in the Houses of Parliament are carried on to three and four o'clock in the morning—that is, to within a very few hours of the time for the publication of the newspaper. The speeches must be taken down by reporters, conveyed by them to the establishment of the newspaper, perhaps at the distance of one or two miles, transcribed by them in the office, set up by the compositor, the press corrected, and the papers be printed off and distributed before the public can read them. Some of these journals have a circulation of from five to ten thousand daily. Supposing four thousand to be wanted, and that they could be printed only at the rate of five hundred per hour upon one side of the paper, (which was the greatest number two journeymen and a boy could take off by the old hand-presses,) sixteen hours would be required for printing the complete edition; and the news conveyed to the purchasers of the latest portion of the impression, would be out of date before they could receive it. To obviate this difficulty, it was often necessary to set up the paper in duplicate, and sometimes, when late, in triplicate: but the improvements in the printing machines have been so great, that four thousand copies are now printed on one side in a hour.

252. The establishment of "The Times" newspaper is an example, on a large scale, of a manufactory in which the division of labor, both mental and bodily, is admirably illustrated, and in which also the effect of the domestic economy is well exemplified. It is scarcely imagined, by the thousands who read that paper in various quarters of the globe, what a scene of organized activity the factory presents during the whole night, or what a quantity of talent and mechanical skill is put in action for their amusement and information.* Nearly a hundred persons are employed in this establishment; and, during the session of Parliament, at least twelve reporters are constantly attending the Houses of Commons and Lords; each in his turn, after about an hour's work, retiring, to translate into ordinary writing the speech he has just heard and noted in shorthand. In the mean time fifty compositors are constantly at work, some of whom have already set up the beginning, whilst others are committing to type the yet undried manuscript of the continuation of a speech, whose middle portion is travelling to the office in the pocket of the hasty reporter, and whose eloquent conclusion is, perhaps, at that very moment, making the walls of St. Stephen's vibrate with the applause of its hearers. These congregated types, as fast as they are composed, are passed in portions to other hands; till at last the scattered fragments of the debate, forming, when united with the ordinary matter, eight and forty columns, re-appear in regular order on the platform of the printing press. The hand of man is now too slow for the demands of his curiosity, but the power of steam comes to his assistance. Ink is rapidly supplied to the moving types, by the most perfect mechanism: four attendants incessantly introduce the edges of large sheets of white paper to the junction of two great rollers, which seem to devour them with unsated appetite; other rollers convey them to the type already inked, and having brought them into rapid and successive contact, re-deliver them to four other assistants, completely printed by the almost momentary touch. Thus, in one hour, four thousand sheets of paper are printed on one side; and an impression of twelve thousand copies, from above three hundred thousand moveable pieces of metal, is produced for the public in six hours.

253. The conveyance of letters is another case, in which the importance of saving time would allow of great expense in any new machinery for its accomplishment. There is a natural limit to the speed of horses, which even the greatest improvements in the breed, aided by an increased perfection in our roads, can never surpass; and from which, perhaps, we are at present not very remote. When we reflect upon the great expense of time and money which the last refinements of a theory or an art usually require, it is not unreasonable to suppose that the period has arrived in which the substitution of machinery for such purposes ought to be tried.

254. The post-bag, despatched every evening by the mail to one of our largest cities, Bristol, usually weighs less than a hundred pounds.

* The Author of these pages, with one of his friends, was recently induced to visit this most interesting establishment, after midnight, during the progress of a very important debate. The place was illuminated with gas, and was light as the day: there was neither noise nor bustle: and the visitors were received with such calm and polite attention, that they did not, until afterwards, become sensible of the inconvenience which such intruders, at a moment of the greatest pressure, must occasion, nor reflect that the tranquillity which they admired was the result of intense and regulated occupation. But the effect of such checks in the current of business will appear on recollecting that, as four thousand newspapers are printed off on one side within the hour, every *minute* is attended with a loss of sixty-six impressions. The quarter of an hour, therefore, which the stranger may think it not unreasonable to claim for the gratification of his curiosity, (and to him this time is but a moment,) may cause a failure in the delivery of one thousand copies, and disappoint a proportionate number of expectant readers, in some of our distant towns, to which the morning papers are despatched by the earliest and most rapid conveyances of each day.—This note is inserted with the farther and more general purpose of calling the attention of those, especially foreigners, who are desirous of inspecting our larger manufactories, to the chief cause of the difficulty which frequently attends their introduction. When the establishment is very extensive, and its departments skilfuly arranged, the exclusion of visitors arises, not from any illiberal jealousy, nor, generally, from any desire of concealment, which would in most cases be absurd, but from the substantial inconvenience and loss of time, throughout an entire series of well combined operations, which must be occasioned even by short and casual interruptions.

Now, the first reflection which naturally presents itself is, that, in order to transport these letters a hundred and twenty miles, a coach and apparatus weighing above thirty hundred weight is put in motion, and also conveyed over the same space.*

It is obvious that, amongst the conditions of machinery for accomplishing such an object, it would be desirable to reduce the weight of matter to be conveyed with the letters: it would also be desirable to reduce the velocity of the animal power employed; because the faster a horse is driven, the less weight he can draw. Amongst the variety of contrivances which might be imagined for this purpose, we will mention one, which, although by no means free from objections, fulfils some of the prescribed conditions, and is not a purely theoretical speculation; since some few experiments, though on an extremely limited scale, have been made upon it.

255. Let us imagine a series of high pillars erected at frequent intervals, perhaps every hundred feet, as nearly as possible in a straight line between the two post towns. An iron or steel wire of some thickness must be stretched over proper supports, fixed on each of these pillars, and terminating at the end of every three or five miles, as may be found expedient, in a very strong support, by which it may be stretched. At each of these latter points a man ought to reside, in a small station-house. A narrow cylindrical tin case, to contain the letters, might be suspended by two wheels rolling upon this wire: these might be so constructed as to enable them to pass unimpeded by the fixed supports of the wire. An endless wire of much smaller size must pass over two drums, one at each end. This wire should be supported on rollers, fixed to the supports of the great wire, and at a short distance below it. With this arrangement, there would be the two branches of the smaller wire always accompanying the larger one; and the attendant at either station might, by turning the drum, cause these two branches of the small wire to move with great velocity in opposite directions. In order to convey the cylinder which contains the letters, it would only be necessary to attach it, by a string, or by a catch, to either of the branches of the endless wire. Thus it would be conveyed speedily to the next station, where it would be removed by the attendant to the commencement of the next wire, and thus transmitted on. It is unnecessary to enter into the details which this, or any similar plan, would require. The difficulties are obvious; but if these were overcome, it would present many advantages besides velocity: for if an attendant reside at each station, the additional expense of having two or three deliveries of letters every day, and even of sending expresses at any moment, would be comparatively trifling; and it is not impossible that the stretched wire might itself be available for a species of telegraphic communication yet more rapid.

Perhaps if the steeples of churches, properly selected, were made use of, connecting them by a few intermediate stations with some great central building, as, for instance, with the top of St. Paul's; and if a similar apparatus were placed on the top of each steeple, and a man to work it during the day, it might be possible to diminish the expense of the two-penny post, and make deliveries every half hour over the greater part of the metropolis.

256. The power of steam, however, bids fair almost to rival the velocity of these contrivances; and the fitness of its application to the purposes of conveyance, particularly where great velocity is required, is now beginning to be generally admitted. The following extract from the Report of the Committee of the House of Commons on steam carriages explains clearly its various advantages:

"Perhaps one of the principal advantages resulting from the use of steam will be that it may be employed as cheaply at a quick as at a slow rate; 'this is one of the advantages over horse labor, which becomes more and more expensive as the speed is increased. There is every reason to expect that, in the end, the rate of travelling by steam will be much quicker than the utmost speed of travelling by horses; in short, the safety to travellers will become the limit to speed.' In horse draught the opposite result takes place: in 'all cases horses lose power of draught in a much greater proportion than they gain speed, and hence the work they do becomes more expensive as they go quicker.'

"Without increase of cost, then, we shall obtain a power which will insure a rapidity of internal communication far beyond the utmost speed of horses in draught; and although the performance of these carriages may not have hitherto attained this point, when once it has been established, that at equal speed we can use steam more cheaply in draught than horses, we may fairly anticipate that every day's increased experience in the management of the engines will induce greater skill, greater confidence, and greater speed.

"The cheapness of the conveyance will probably be for some time a secondary consideration. If, at present, it can be used as cheaply as horse power, the competition with the former modes of conveyance will first take place as to speed. When once the superiority of steam carriages shall have been fully established, competition will induce economy in the cost of working them. The evidence, however, of Mr. Macneill, showing the greater efficiency, with diminished expenditure of fuel, by locomotive engines on railways, convinces the committee that experience will soon teach a better construction of the engines, and a less costly mode of generating the requisite supply of steam.

"Nor are the advantages of steam power confined to the greater velocity attained, or to its greater cheapness than horse draught. In the latter, danger is increased, in as large a proportion as expense, by greater speed. In steam power, on the contrary, 'there is no danger of being run away with, and that of being overturned is greatly diminished. It is difficult to control four such horses as can draw a heavy carriage ten miles per hour, in case they are frightened, or choose to run away; and for quick travelling, they must be kept in that state of courage that they are always inclined for running away, particularly down hills, and at sharp turns of the road. In steam, however, there is little corresponding danger, being perfectly controllable, and capable of exerting its power in reverse in going down hills.' Every witness examined has given the fullest and most satisfactory evidence of the perfect control which the conductor has over the movement of the carriage. With the slightest exertion it can be stopped or turned, under circumstances where horses would be totally unmanageable."

257. Another instance may be mentioned in which the object to be obtained is so important, that although it might be rarely wanted, yet machinery for that purpose would justify considerable expense. A vessel to contain men, and to be navigated at some distance below the surface of the sea, would in many circumstances be almost invaluable. Such a vessel, evidently, could not be propelled by any engine requiring the aid of fire. If, however, by condensing air into a liquid, and carrying it in that state, a propelling power could be procured sufficient for moving the vessel through a considerable space, the expense would scarcely render its occasional employment impossible.*

* It is true that the transport of letters is not the only object which this apparatus answers; but the transport of passengers which is a secondary object, does, in fact, put a limit to the velocity of that of letters, which is the primary one.

* A proposal for such a vessel, and description of its construction, may be found in the Encyclopædia Metropolitana, art. "Diving Bell."

THE POPULATION OF THE UNITED STATES.—The Boston Journal has some interesting suggestions on this subject, derived from the last Quarterly Register.

The greatest population to a square mile is in the District of Columbia, where it is 393; in Connecticut, 63; in Rhode Island, 72; Massachusetts, 81; Maryland and New-Jersey, 40; Ohio, 24; New-York, 41; Pennsylvania, 30.

The population of New-York in 1840, it is supposed, will be 2,500,000, or 200,000 more than that of all New-England, and about equal to that of all the North-Western Territories. That of Pennsylvania is rated at 1,700,000; of Ohio, 1,300,000. That of Virginia is put at a few thousand more. And thus the oldest settled of the States, which in 1790 had a population of 747,000, will have been overtaken by a State which had no government of any kind until one year before that date, did not become a State until 1802, and had in 1790 a population of only 3000. Indeed, Ohio has the resources within itself for growing into the greatest State of the Union. It can support, without difficulty, a people as dense as that of Holland.

Ohio contains but 39,000 square miles, while Virginia contains 64,000, which is within 1000 of the whole area of New-England, and makes Virginia the largest as well as the oldest State. The next in order is Georgia 62,000, and Missouri 60,000. Illinois contains 55,000, Florida 50,000, New-York 46,000, Pennsylvania 44,000, N'th Carolina and Louisiana 48,000 each. Delaware contains 5100, and Rhode Island 1350.

The most rapid increase of population we observe is in the case of Ohio, which increased from 3000 to 45,000 in ten years, and in the next ten to 230,000. This last was at the rate of 409 per cent. in ten years, whereas the average rate of the whole Union for the last 10 has been but 33 per cent. and that of New-England but a little less than 19. That of New-York was never greater than 72; of Maine, 58; Illinois, 350; Indiana, 500; Michigan, 764; Arkansas, 1344. The most rapid increase has, of course, been in the early settlements.

The population of the United States in 1480 is rated at 17 millions. What it will be a hundred years hence, it is not easy to calculate. What it *may* be, however, is inferible from the fact that our territory is immensely extensive; that a vast amount of rich land is yet unoccupied; that lands now cultivated may be made vastly more productive; that a large portion of our country is under tropical climates; and that if the whole country should support but 230 inhabitants to a square mile, as England now does, we should have, as the editor of the Register observes, more than 450,000,000!!

GARDENS AND HONEY AT SYRACUSE.—The following is an extract of a letter from an American gentleman in Sicily, published in the Journal of Commerce:

"We next entered the Marquis of Casal's garden. It contains several acres, but it is subterranean, like that of the genii in the tale of Aladdin. It is an excavation, and the smooth rocky walls rise around it, between 100 and 200 feet high. The oranges, citrons, and lemons, are the largest in Sicily: they are delicious, and there is a great variety of flowering plants. The imagination can hardly conceive a more delightful place. Another similar garden is attached to the Capuchin Convent. The walls were shaped into form with vast labor, and some pillars of rock were left standing in the middle. There are many caverns, but the open spaces are cultivated as a garden. The approach is over a large rock, when you come suddenly upon a garden yellow with golden fruits, sunk deep in the earth. On a shelf in the rock are fifty swarms of bees, that gather a honey little less fragrant than that of Hybla. Let me tell you in a parenthesis, lest I forget it elsewhere, that I have been to Hybla itself, where I obtained a hundred pounds of that honey, so renowned in poetry. It is above all honey in taste, and it has the fragrance of flowers. You shall taste it, for there is no more to be had at Hybla. Strange it is that while Sicily has had so many different populations, the Greek, the Roman, the Saracen, the Norman, and a mixture of them all, that, if the ancient dead could revive, they would hardly know their country: yet the same bees continue to make the same honey, and have the same flowers that were gathered by Proserpine, or sung by Theocritus."

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LITERARY NOTICES.

On the adaptation of External Nature to the Moral and Intellectual Constitution of Man; by Rev. T. Chalmers, D.D.; 1 vol.: *Philad*, Carey, Lea & Blanchard.—Though third in the order of publication, this is the first in the order of division of the eight treatises written for the Bridgewater legacy of £8000 stg. It is, as all that Dr. Chalmers writes, unquestionably able and ingenious; but frequently obscure, and harsh and negligent in style. It too, taken in connection with the two previous treatises heretofore noticed in these columns, serves to confirm our first impression of regret, that the able and well considered legacy had not been given undivided to some one individual. Such a man, with capacity and instruction enough to embrace the whole subject—"the Power, Wisdom and Goodness of God as manifested in the Creation"—and to illustrate it, as desired, by arguments derived from the animal, mineral and vegetable kingdoms, from the construction and functions of man, and from every department of art, science and literature, could surely have been found; and if not, so magnificent a bequest would well repay the study and application of half a life devoted to the acquisition of the requisite knowledge. We should then have been presented with a homogeneous treatise, where, though each distinct topic were separately treated, there would be a constant and natural support derived from one to the other, and all combining harmoniously to proclaim and prove the great truths it is intended to illustrate. Now we have disjointed treatises, in which the aid that one branch of the eight into which the subject has been arbitrarily divided, might afford another, is scarcely availed of—for fear of touching on another's ground—or, if availed of at all, slightingly and often most unsatisfactorily. Another objection to this parcelling out of the subject is, that the bulk of the treatises will be so increased as by their extent alone to deter many persons from reading them. These objections, however, are now unavailing. We must take the treatises as they are; and thus far, it is to be said with all truth, that they are executed with ability and a due sense of the importance of their object.

We make a single extract from this volume, which combines, we think, the peculiarities of Dr. Chalmers's style, with his accustomed force of reasoning:

The chief then, or at least the usual subject-matter of the argument for the wisdom and goodness of God, is the obvious adaptation wherewith creation teems, throughout all its borders, of means to a beneficial end. And it is manifest that the argument grows in strength with the number and complexity of these means. The greater the number of independent circumstances which must meet together for the production of a useful result—then, in the actual fact of their concurrence, is there less of probability for its being the effect of chance, and more of evidence for its being the effect of design. A beneficent combination of three independent elements is not so impressive or so strong an argument for a divinity, as a similar combination of six or ten such elements.—And every mathematician, conversant in the doctrine of probabilities, knows how with every addition to the number of these elements, the argument grows in force and intensity, with a rapid and multiple augmentation—till at length, in some of the more intricate and manifold conjunctions, those more particularly having an organic character and structure, could we but trace them to an historical commencement, we should find on the principles of computation alone, that the argument against their being fortuitous products, and for their being the products of a scheming and skilful artificer, was altogether overpowering.

We might apply the consideration to various departments in nature. In astronomy, the independent elements seem but few and simple, which must meet together for the composition of a planetarium. One uniform law of gravitation, with a force of projection impressed by one impulse on each of the bodies, could suffice to account for the revolutions of the planets round the sun, and of the satelites around their primaries, along with the diurnal revolution of each, and the varying inclinations of the axes to the planes of their respective orbits. Out of such few contingencies, the actual orrery of the heavens has been framed. But in anatomy, to fetch the opposite illustration from another science, what a complex and crowded combination of individual elements must first be effected, ere we obtain the composition of an eye,—for the completion of which mechanism, there must not only be a greater number of separate laws, as of refraction and muscular action and secretion; but a vastly greater number of separate and distinct parts, as the lenses, and the retina, and the optic nerve, and the eye-lid and eye lashes, and the various muscles wherewith this delicate organ is so curiously beset, and each of which is indispensable to its perfection, or to the right performance of its functions. It is passing marvelous that we should have more intense evidence for a God in the construction of an eye, than in the construction of the mighty planetarium—or that, within less than the compass of a hairbreadth, we should find in this lower world a more pregnant and legible inscription of the Divinity, than can be gathered from a broad and magnificent survey of the skies, lighted up though they be, with the glories and the wonders of astronomy.

Commentaries suited to Occasions of Ordination; by Bishop White, of Pennsylvania. New York, *Swords, Stanford & Co.*—This new edition of a work that has become a standard in the American Episcopal Church, is prepared at the express request of all his brother bishops, by the venerable and reverend prelate, who, serving in the armies of Independence as a chaplain, has lived to see his beloved country, as well as the church, of which he is by age the honored head, reach their present palmy state. The work is well printed, with a fine engraving prefixed of Bishop White; and will doubtless be acceptable to the numerous ministers and members of the Episcopal communion.

The Communicant's Manual, &c. taken from the Manual for the Altar; by the late Bishop Hobart. New York, *Swords, Stanford & Co.*—A neat little pocket volume, adapted, like that noticed above, to the special use of Episcopalians.

The Spirit of Prayer; by Hannah More: with Prayers and Meditations for each Day in the Week. N. York, *Swords, Stanford & Co.*—From a dying bed, *Hannah More*, in this little volume, seeks to crown the good effected in a long life of active benevolence and piety, by presenting in a striking view, the necessity and the consolations of prayer, and exemplifying the spirit in which it should be resorted to.

Polynesian Researches, Vol. II; by Wm. Ellis. New York, J. & J. Harper.—There are no volumes of recent publication better got up, mechanically speaking, than these; or which, by their contents, are more interesting. On the appearance of the first volume, we took occasion to express this opinion at more length; and we see additional confirmation of it in that now before us.

German Parables, by Krummacher: *New York*, Peabody & Co.—These parables are renowned in Germany, and they seem to us well rendered into our language, and calculated to improve as well as amuse.

The Modern Cymon, from the Jean of Paul de Kock; 2 vols.: *Philadelphia*, Carey, Lea & Blanchard.—The humor of this French novel of middle life seems to us to have evaporated in the translation, while much of its coarseness and—we must even say it—its vulgarity is retained. It furnishes however, we presume, a faithful portraiture of living manners, and thence its chief interest.

Sketches of Turkey in 1831 and 1832, by an American. 1 vol. 8vo. pp. 500. *New York*: J. & J. Harper.—Though given to the world without a name, it seems to be understood that *Dr. James E. Dekay*, of this city, is the author of these Sketches. We are quite safe, we think, in saying, that if the name were originally withheld from doubts as to the value, or the reception of the book, they will be effectually dissipated; for we have rarely seen a work better calculated to arrest and repay attention, or more marked by sound judgment, careful observation, and an independent tone of thought, in the selection and discussion of the various topics which it embraces. The Turks as a people are manifestly favorites with the author—though he does not on that account overlook or underrate their deficiencies. On the other hand, he omits no opportunity of expressing his contempt for the Greeks, and treats our American enthusiasm in favor of these "descendants of Themistocles" as schoolboy raphsodies, or at least as the offspring of schoolboy recollections. We will not contest this point with him—content, as we always are, in this "bank note age," to find enthusiasm on any subject unconnected with self. This book will dissipate many popular errors in regard to the habits and manners of the Turks. Foremost among these is the universally received opinion, that they are great chewers of opium, and that a special part of the city is assigned to coffeehouses, where the opium-eaters go to indulge their propensity. This our author positively contradicts, never having seen in Constantinople, he says, himself, but one individual, and that was a Jew, under the influence of this drug. If it ever was a national vice, he adds, it has wholly disappeared. Another common opinion is, that in Turkey the women are all closely secluded. Yet see what an eye witness tells us:

Every person who has been in Turkey, and is not afraid of speaking out his real sentiments, instead of timidly acquiescing in the loose reports of ignorant or prejudiced travellers who have preceded him, will agree with us when we state that women in Turkey actually enjoy more liberty than in the other countries of Europe or in America. We do not speak of the higher classes, for we know nothing about them, although our opportunities have been equal to those of most of our predecessors, and in many cases superior. We allude to the middling classes, by which alone every country is to be judged, if judged fairly or correctly. No stronger proof of the liberty they enjoy is necessary than the numerous parties of ladies which one meets with in the environs of Constantinople, which excursions, from their frequency, appear to form almost the sole business of their lives. It is in fact a pleasant way of passing time, and resembles our own practice, except that it differs in its details. Instead of a formal card from Mrs. White to Mrs. Green and the Misses Green, the Turkish lady sends her servant to a friend, and asks her company to ride out to Belgrade, or to an excursion on the Bosphorus. Instead of being bored to death like Mrs. White, who hopes half her dear friends will stay away, and between the grumbling of husband and remissness of servants, is in a feverish flutter for a week or fortnight, the Turkish lady manages the affair in a different manner. The fair Fatimah orders provisions to be put up for a day's excursion, and leaving enough for her complaisant husband, steps into her *caik and calls upon her friend the lady Zaylilah. From thence the party proceed up the Golden Horn, or, breasting the Bosphorus, select some lovely valley bordering upon that "ocean stream." Here the friends spend the day surrounded by their household, and continuing their customary avocations, while the young people are sporting under the shade of the lofty trees, and the party return home in the evening in high spirits, and with their health improved by exercise in the open air. It may be doubted whether our young women are equally benefitted by spending an evening in a heated and crowded room, and vitiated atmosphere; but we fear the comparison may be thought Gothic.

In Constantinople, and the same may be said of all Turkey, the women occupy the markets, and fill the streets, and barricade the bazars. Availing themselves of the general respect paid to their sex, they elbow their way through a crowd, regardless of whom they may derange in their way; and the domestics do not scruple to act upon the principle of "peaceably if we can, forcibly if we must." It has more than once been our lot, in a crowded bazar, to receive a substantial punch in the side, and upon turning round, discover that the uncourteous as-

* A light boat.

lutation proceeded from the fair hand of some Turkish servant woman, whose path we had unconsciously impeded. They never address a stranger, nor reply to a casual observation. In perambulating the bazars with two American children, I have been, however, frequently accosted by the Turkish women, and their inquiries and observations were made with the most perfect freedom and simplicity. These facts are mentioned to show the unrestrained liberty enjoyed by the Turkish women; and we are assured, by persons whose long residence and perfect familiarity with many Turkish families here entitle them to full credit, that the class of discreet and sensible husbands maliciously termed henpecked is as numerous in Turkey as in any other part of the globe.

For truth, honesty and fidelity, the Turk has, on the showing of this writer, no superior; and urbanity of deportment, even towards Christian dogs, he never found wanting. On the contrary, he cites various instances where, among the soldiers as well as the people, he met with the most obliging treatment.—There is to be sure among them a great indifference to human life—but not more, we apprehend, than in Spain or Italy—whilst their kindness to the brute creation is proverbial. Take for example these instances:

I have, however, already had opportunities of witnessing the kindness universally manifested by the Turks towards the brute creation. It is not an uncommon thing to see open boats in the Golden Horn loaded with grain, and literally covered with flocks of ringdoves feeding undisturbed. Besides these water-birds, there are others, which are constantly on the wing, and hence termed by the Turks *Yengwan*, which the Franks have translated into "ames damnées," in allusion to their perpetual restlessness. [A species of Pediceps.]

* * * * *

There is one little circumstance connected with these tombstones which displays an amiable trait of character. On the upper corner of each stone are two small cavities, which are usually filled with water. The intention of this is to supply a drink to the thirsty birds, and indeed to invite them to take up their residence in the neighborhood, and by their song to give additional cheerfulness to the spot. It is not, however, exclusively an Armenian practice, for the Turks and other orientals have the same custom.

Turkish ignorance, or rather unskilfulness in mechanics, is quite extraordinary. "I do not think," says our traveller, (p. 163) "I ever saw a straight wall, a level floor, or a true perpendicular, in any house during my residence in Turkey." Yet with all this, they construct works both ingenious and gigantic. That described in the annexed extract,—as a means of passing water over a deep ravine, without incurring the expense of a vast aqueduct, and in the absence of pipes, (which they have not the skill to make,) capable of sustaining the pressure of a great head of water—is very striking.

Where a valley of great extent is to be crossed, the Turks have resorted to an ingenious contrivance, which I have nowhere seen clearly described, but which, from its simplicity and value, merits a more particular notice. From the want of sufficient mechanical skill to manufacture water-pipes strong enough to bear the weight of a large column of water, they adopted the following plan: In the direction of the proposed water-channel, a number of square pillars are erected at certain short intervals. They are about five feet square, constructed of stone, and, slightly resembling pyramids, taper to the summit. They vary in height, according to the necessities of the case, from ten to fifty feet, and in some instances are even higher.

They form a striking peculiarity in Turkish scenery, and it was some time before the principle upon which they were constructed was apparent. The water leaves the brow of a hill, and descending in earthern pipes rises in leaden or eathern ones, up one side of this pillar, to its former level, which must be, of course, the summit of the pillar, or *sooteray*, as it is called by the Turks.* The water is here discharged into a stone basin as large as the top of the sooteray, and is discharged by another pipe, which descends along the opposite side of the pillar, enters the ground, advances to the next sooteray, which it ascends and descends in the same manner; and in this way the level of the water may be preserved for many miles over large ravines or plains, where an acqueduct would be, from its expensiveness, manifestly out of the question. In the city of Constantinople, the old ruinous acqueduct of Valens, which no longer conducts water in the usual manner, is converted into a series of sooterays, and permits one to examine their structure in detail. The stone basin on the summit is covered with an iron plate, to prevent the birds from injuring the water. This is connected by a hinge, and, upon lifting it up, the basin is found to be divided into two parts by a stone partition. Several holes are made in this partition near its upper edge. The water from the ascending pipe is allowed by this means to settle its foreign impunities, and the surface water, which is of course the most pure, flows through these apertures into the adjoining compartment, from whence it descends, and is carried to the next sooteray, where the same process is repeated. A number of projecting stones on the side facilitate the ascent of the person who has the charge of these sooterays, and whose business it is to remove the deposits from the water in the stone basins.

This ingenious hydraulic arrangement seems to possess advantages which might recommend its adoption elsewhere. As the pressure is thus divided among this series of syphons, the necessity for having very strong and costly pipes is obviated. As they are from three to five hundred yards apart, the cost is probably much less than by any plan which could be devised, where, in addition to the cost of a canal or series of pipes, we should be compelled to raise it again by the expensive agency of steam or some other costly apparatus. The frequent exposure of the water to air and light at the summit of these sooterays is another very important advantage which cannot be too strongly insisted upon; as it is now well known that nothing tends more to purify water than the presence of these two agents. The arrangement likewise of the basins on the top of the pillars is well adapted for getting rid of much of the matters deposited from turbid waters. Lastly, to the descending pipe a small cock is attached near the ground, by which the flocks and herds of the adjoining villages and fields are furnished at all times with a copious supply of water.

On the heights of Pera there is a large reservoir, 200 feet square, built of the most solid and substantial masonry; from this reservoir the water is distributed through the suburbs of Fundukli, Pera, Galata, and Cassim Pacha.

After a deliberate survey of the various hydraulic contrivances for supplying Constantinople with water, one is at a loss to know which to admire most, the native good sense which pointed out the necessity and importance of furnishing the capital and its suburbs with pure and wholesome water, the ingenuity displayed in conquering almost invincible obstacles, or that wise and liberal economy which considered no expense too enormous, no sacrifice too great in comparison with the health and comfort of the people. The various water-courses about Constantinople must exceed fifty miles in length, and the expenses of the various reservoirs and aqueducts could not have been less than fifty millions of dollars. With a single remark we shall conclude our remarks on this subject. The city of New York, with a population of more than 200,000 inhabitants, has been deliberating for years over the question—whether it is expedient to spend two millions of dollars for the purpose of introducing a copious supply of pure and wholesome water.

The numerous and expensive expedients adopted of insuring a supply of water to Constantinople, are indeed worthy of all admiration, and at a humble distance, of all imitation in New York. It will surprize our readers, we apprehend—it certainly did us—to learn that there are 1200 primary public schools in Constantinople, in which reading and writing are taught, and the Koran is read and explained. From the fact that in those schools visited by him no girls were present, our author drew the conclusion that reading and writing are not in Turkey deemed indispensable to females.

Much information that cannot be otherwise than useful, is collected in the chapter which treats of the commerce of the Black Sea. The advantages that Americans may derive from it are thus set forth:

The Austrians are and will continue to be our most active rivals. An American is surprized upon entering the Mediterranean to find that a flag unknown to him is flying at the masthead of almost every third vessel he may happen to fall in with. He is told it is the Austrian flag; and the key to the wonder is the extent of her Italian possessions. Under her flag the ancient enterprise of Venice has received new life, and her canvass whitens every sea. The carrying-trade is chiefly in their hands, and is considered as exceedingly profitable. They have been on thorns ever since our treaty has been in agitation, as they seemed to anticipate that American vessels would monopolize the whole business. Although the cost of navigating an Austrian vessel is less than one of our own, yet this would, we apprehend, be more than counterbalanced by our superior sailing and quicker despatch. The Austrian vessels are usually polacre brigs of 150 to 400 tons. Desirous of informing myself personally of the advantages which they are supposed to possess over our own ships, I visited one which had recently been built at Trieste, and said to be the finest that had ever been launched from that port. She was of the burthen of 400 tons, had cost when complete $20,000, was navigated by eighteen men. In the summer months she only requires sixteen men. Their wages vary from $8 to $10 per month, and her annual insurance is $1000. The men are furnished with excellent provisions, and the captain informed me that he could get no sailors, unless he furnished them with as good food as he required for himself. This vessel makes two voyages annually between Odessa and Trieste, which is considered about the average, although three and even four have been made; but this is acknowledged to be of very rare occurrence. Much of the length of these voyages must depend on the facilities afforded for making up a cargo, but we have been informed by competent authority, that even allowing for the unavoidable delays at the Dardanelles and Bosphorus, forty days would be an ample allowance for the passage between Trieste and Odessa. This would give four complete voyages, but as the Austrians commonly make but two, each trip must consume more than ninety days. Our own vessels, we are inclined to believe, taking the whole year round, would make a complete voyage every two months, provided there was no unusual detention on account of the cargo. From these facts our ship-owners may judge for themselves of the rivalry to be anticipated from Austrian vessels.

Whether however, after reading the annexed passage, our thorough political economists will think the Doctor a sound judge in matters of commercial intercourse, we somewhat doubt; yet his facts are facts "for a' that."

We do not profess to be versed in the metaphysics of commerce, and indeed have given up the idea of ever being made to comprehend its intricacies, when we were instructed that it was far more beneficial to pay a foreigner six cents for an article, than to purchase it from a neighbor and fellow citizen at the same price, or who will take something from us which will be an equivalent. The advocates for free-trade will find a beautiful example of its operation in Turkey. The duties, as we have said are almost nominal; and, as a consequence, domestic industry is at a stand. England furnishes them with cloths, rat-traps and penknives; France with caps, confectionaries, and shoes; while Russia obligingly furnishes them with bread.

THE LAST MAN; BY MRS. PERCY BYSHE SHELLEY. 2 vols. Philadelphia, CAREY, LEA & BLANCHARD.—'The Modern Prometheus,' by the same female hand,—strange, that a female should have such a taste as this and the former work indicate!—will prepare all readers for the tales of horror, desolation, and wo, wrought up with considerable talent, which this work presents. It is the history of the earth depopulated by a pestilence, and leaving only a single survivor. It is quite as horrible as can be desired.

ORAN THE OUTCAST; OR A SEASON IN NEW YORK. 2 vols. PEABODY & Co.—These volumes purport to be a description of a portion of society in New York, which "arrogates to itself the title of 'good.'" We do not know any portion of society which does "arrogate" this title; nor, if that occasionally, and by no means skilfully, touched in these pages, be that portion, have we any great curiosity to know it. There is, however, little space comparatively devoted to this topic, the work being made up principally of a series of most improbable adventures and incidents. There is some talent displayed in the

* This word is from the Turkish *sooteraysoo*, which means the levelling of the water, and expresses very well the object of the sooteray.

style, and a respect for sound principles inculcated in the sentiments of the writer; but as a picture of New York society of any sort, or at any time—the book is a failure.

TRANSATLANTIC SKETCHES, COMPRISING SCENES IN NORTH AND SOUTH AMERICA AND THE WEST INDIES, by Captain J. E. ALEXANDER, *Philadelphia*, KEY & BIDDLE.—The author of this thick royal octavo has certainly shown himself a very active, industrious personage to travel through a hemisphere and write such a book in a *twelvemonth*. His researches, as may be readily believed, are not very deep; but he is a good-humored, rattling, cosmopolit*ish* character, who whisks over half our little planet as unceremoniously as if, instead of voyageing among nations, states and empires, he were taking an afternoon trot on the Third avenue.

We have marked a few extracts relating to that inexhaustible subject, about which, in what Captain Hamilton calls our greedy and inexhaustible national vanity, Americans never tire of hearing—ourselves. The first relates to our army, a post of which near New Orleans, was visited by Capt. Alexander:

The officers were very sensible and gentlemanly, but their manner was more reserved than is usual among our people; and though we were near a scene of (to them) great exultation, the defeat of some thousands of our Peninsular heroes by entrenched American riflemen, yet they made not the slightest allusion to it; and there was no vain boasting on their part, but a delicate reserve, when I introduced the subject, and expressed a wish to visit the unfortunate field

The uniform of the officers and men was a blue coatee with white buttons, lace on the cuff and collar, and wings on the shoulders; *the men on duty were not particularly well set up, but the Americans in general have a lounging air about them.* The barrack-rooms were clean, and the kits neatly arranged; but I was surprized to see that, in the hot climate of Louisiana, the American soldiers slept two in a bed. Their bed-stands were wooden frames, which could easily be taken to pieces, and had upper and lower berths. There are no iron bedsteads yet in the States, and consequently their men are far from being so comfortable as ours in this respect. In the barrack-square I observed the punishment of hard labor with a clog and chain attached to the foot of the culprit; and I understand that flogging and solitary confinement was often resorted to, though free and independent American soldiers being flogged seemed rather strange, *but there are few genuine Americans in the army.*

Speaking elsewhere of the army, the Captain comments upon the inadequate pay of non-commissioned officers, on whom he insists the efficiency of a corps chiefly depends.

Speaking of the backwoods, he says:

Let the youth who is full of himself, who is conceited with the flattery of female friends, uplifted in his own estimation, make a tour in the backwoods of America, it will soon cure him of his empty pretensions. Affectation is unknown there, and he will soon acquire a natural manner of acting and thinking.

FOREIGN INTELLIGENCE.

LATER STILL.—The Napoleon arrived yesterday afternoon from Liverpool. We have our regular London files to 25th ult. inclusive.

The Portuguese question is the main one now.—Bourmont, it would seem, was bent upon making an attempt to regain Lisbon. He had been sending off his troops by detachments in the direction of Coimbra several days, before he fairly raised the siege of Oporto, and in that way had evidently stolen a march upon his opponents. His force, after the junction effected with Mallellos and the Duke of Cadaval, would exceed considerably in numbers any that Villa Flor (the Duke of Terceira) could oppose to him.—Donna Maria had not been officially recognized by either France or England. The former hesitated, it is said, until it could obtain the promise of commercial immunities in Portugal equal to those of England;—the latter because of the distrust—entertained in a special degree by the Lord Chancellor—of Don Pedro. Lord Wm. Russell was, however, acting avowedly at Lisbon in concert with Don Pedro and the Marquis Palmella, Don Pedro having openly assumed the Regency in the name of his daughter, and thus revoked the commission previously given to the Duke of Palmella.

The Paris papers view this as disgracing M. Palmella.

In France all seemed quiet. The imprisoned Ministers of Charles X. were, it was said, about to be transferred from Ham to Blaye, the recent place of detention of the Duchess of Berri. King Philip was about visiting the sea coast, and at Dieppe was to give a succession of naval and other fetes.

The existence of a treaty between Russia and Turkey was admitted by Lord Palmerston in the House of Commons in reply to some question put to him; but of its nature, he was, he said, wholly uninformed. We refer our readers to the report of what took place on that occasion.

The first session of the first Reformed British Parliament would, it was understood, be closed by the King in person on Thursday 29th August. It has been a very long, and certainly an important one—though we infer from the tenor of the papers, by no means satisfactory on the whole to the nation. Three important acts, however, it had passed: that for the emancipation of slaves in the colonies; that renewing the charter of the Bank, and that renewing, with most essential modifications, the East India Company's charter. So completely were the members tired out by the length of the session, or so completely did the love of grouse shooting (which commences on the 12th of August) prevail over the sense of legislative obligation, that the most prominent measures were, according to the Spectator, decided by "about forty Peers, and about twice as many Commoners."

So flagrant was this abuse, that during the discussion of an important clause in the Bank charter bill, Sir John Wrottesley took occasion to make the following remarks respecting the small attendance of members in the House:

That clause was so important, that he was impressed with a feeling of awe upon it, seeing the state in which the House then was. That Parliament had been elected under the impression that *all monopolies should cease. By looking at the public papers, he found that* 300 *out of the* 658 *members were pledged at the hustings to vote for the repeal of all monopolies, more particularly the Bank and East India; yet now, when they were discussing one of the most important of all, there were not above fifty members present.*

The clause passed by a majority of 49 to 16!

Spain seems to be again in suspense by reason of the renewed illness of the King. It is now rumored that Zea Bermudez, who has complete ascendancy in the ministry, is playing into the hands of Don Carlos, and that the pretensions of that prince in opposition to those of the Infanta will, in the event of the King's death, be sustained by that minister.

We understand that it is decided that Queen Donna Maria is to embark at Havre, where Admiral Napier, in the John IV., will come to receive her. She is to leave Paris on Monday next, and orders have been already sent to Havre to prepare lodgings for forty persons, of whom her suite will consist. Her Majesty will be accompanied by the Duchess of Barganza and the Marquis of Loule. It is also said that a French Minister Plenipotentiary will go with the young Queen, who will be formally acknowledged by the French Government immediately upon her arrival at Lisbon. Rumours are abroad of the disgrace of the Marquis of Palmella, which it is said, are confirmed by a courier from Spain.

[*From Galignani's Messenger.*]

"A report" says the *Courrier Erancais*, "is current that the projected marriage between the Duke de Nemours and Donna Maria will not take place, because the Queen has openly declared her attachment for Duke Eugene de Leuchtemberg, brother of her august mother-in-law, and that he alone shall be her husband. The Duke de Leuchtemberg is the son of Eugene Beauharnois, his sister is the wife of Don Pedro.

The *Moniteur Algerien* has the following paragraph:—

"News has just been received here of the taking of the towns of Monstaganem, by the troops from the division of Oran. We are not yet acquainted with the details of this brilliant affair, in which the marine had a great share.'

CONSTANTINOPLE, JULY 25.—What was some time ago a mere report is now an undoubted fact. The Porte has concluded an offensive and defensive alliance with Russia, which is still kept secret, and of the contents of which only so much has transpired, that Russia engages to afford every assistance asked for by the Porte, and that the latter engages, in case Russia should be at war with any power whatever, to treat that power as an enemy; farther, that Russia renounces the payment of the expenses of the late expedition, estimated at ten millions of rubles, and that the duration of the treaty is fixed for eight years; that this treaty is as advantageous to the Porte, as it greatly strengthens the power of Russia, admits of of no doubt. In particular nothing can be better adapted to defeat the ambitious plans of Mehemet Ali, should he entertain any such, as has been conjectured.

The Porte issued a few days ago a new coinage, the real value of which is much greater in proportion to the nominal value than all the coin of the same description before issued. It is difficult to imagine how this it possible in the dilapidated state of the Turkish finances; but perhaps report has exagerated on this point.

The capital enjoys profound tranquility, and trade and commerce seem to revive.

The accounts from Greece are favorable.—[Allgemeine Zeitung, Aug. 16.]

The *National*, after some observations on the importance of an offensive and defensive alliance between Russia and Turkey in pursuance of which the latter Power would be compelled to close its ports against any nation with which the former may go to war, argues that the only remedy for the evil is for France to form an equally close alliance with Egypt, which it strongly advises being at once done, if, indeed, it be not already too late, and if the success Mehemet Ali has obtained, without the assistance of France, do not induce him to consider her friendship as now useless to him.

[*From the Athenæum.*]

Letters have been received from Richard Lander, dated 8th May, from Fernando Po, where he had been obliged to go for the recovery of his health.—He had been seriously ill, but was so far recovered, that he intended to return in the Albert man-of-war, in a day or two, to the brig at the mouth of the Niger, where it had been arranged that the steamboats from the interior should meet him. The steamboats had been detained up the river for want of water.

Colouel Nicholls, the Governor of Fernando Po, had kindly furnished him with a supply of wine and medicines for the invalids. Lander expected to be in England in September or October.

During the first month, not less than twenty deaths occurred among the persons composing the expedition: in the second, five. Of the officers only three remained alive, namely, Messrs. Lard and Lander and Lieutenant Allen.

LONDON, AUG. 24.—We have received the French papers of Wednesday, 22d, with a letter from our correspondent of the same date.

PARIS, AUG. 21.

The approaching birth-day of the Duke of Bordeaux, on which, according to the ancient usages relative to the King of France, he will attain his majority, is, it appears, to be a grand day for the legitimatists; all the young heroes of the party, except those who are with Gen. Bourmont, are to make a pilgrimage to Prague, to pay their homage to their Sovereign; but as they apprehended that the police may not approve of so formidable an army marching through the country, they are to go in separate detachments of twos and threes, and only show themselves in their might after their arrival at Prague.—One little circumstance is a serious annoyance to them. The Marquis de Pasteret, who still considers himself Chancellor of France *de jure*, was to have headed the party at Prague, and drawn up an official act of the majority, oath of allegiance, &c. but it appears that the Noble Marquis has been refused a passport, and must either go by stealth or not at all.

All the absolutists are highly indignant at the publication of the Portuguese intercepted letters.

The Roman Catholic priesthood in India exceeds in number the ministers of the Protestant Church, in the proportion of about 300 to 1; and the population of each persuasion differs in an equal ratio.

The Lord Chancellor is much opposed to general abolition of *sinecures*, which would do away with the appointment he holds as *keeper of the King's conscience*.—[Figaro in London.]

Tremendous Fall of Limestone-cliff at Marcross.—On Thursday, the 24th of July, an immense avalanche of the lofty cliff at Marcross, in this county, took place, and it is calculated that 200,000 tons of limestone rock were precipitated upon the beach. It has unfortunately occurred very near one of the newly-erected light-houses, and though there is no immediate danger, yet, when what Leland so aptly calls "the rages of Severn" are considered, there is no calculating how soon these substantial and solid fabrics might be undermined. A large party from Cowbridge and its vicinity had been spending the day on the Marcross rocks, and some of the party (of the families of the Rev. Robert Knight and T. Basset, Esq, of Welch St. Donais) had only left the spot a few minutes before the fall took place.—[Merthyr Guardian.]

A French paper mentions that the public library at Caen has lately been enriched by several valuable volumes not less curious than remarkable for the beauty of the writing. They are presents sent from Karibal and Coromandel, by Messrs. Firmin and Hippolite Joyau. They are written upon lamina of the palm tree, called in the country aules, and contain dramatic poetry and eastern tales, in Tamoul, one of the principal languages in the south of Hindostan.—M. Joyau, sen. has also deposited at the Museum, in the names of his sons, a number of rare shells, but a still greater quantity have been lost by a singular accident. When the boat which brought this valuable addition to the science of conchology from Ceylon to Karibal left, the cholera had just broken out, and the sailors attributing the disease to the infection arising from the dead fish in the shells, they were all thrown back into the sea. Messrs. Joyau, however, hope to repair this loss, though it will be attended with considerable difficulty.

A Terrific Sea Monster.—A boat belonging to Mr. Catt brought on shore at Seaford, a few days ago, a fish of an extraordinary kind. Its fins resembled the arm and hands (with finger nails) of a human being, and it had two protuberances or sort of pockets on each breast, which were filled with small fish.—When taken from the net, it followed the fishermen round the boat; and in order to get rid of "so ugly a customer," they procured weapons and despatched it forthwith.—[Brighton Gaz.]

This strange mannered monster, that "walks erect and looks to Heaven," must surely be a descendant of Shakspeare's Caliban, or of the nondescript sailor mentioned by Aboulfoaris, in the Eastern tale, He might, if taken alive and properly conciliated, have made a capital mate of a Nantucket smack cruising after the Sea Serpent.

The Destroying Engine.—Sir Thomas Urquhart tells us that John Napier, the father of the first Lord, and the inventor of the logarithms, had invented a destroying engine that would clear a space a mile in extent each way of the enemy; in other words, of 30,000 Turks without the loss of a Christain. But on being requested by his friends in his last illness, to reveal the contrivance, he replied. "That if he could lessen the means already existing for the destruction of man, he would with all his might apply himself to the purpose, but that they should never by his means be increased." He died 1617.—[Sharpe's Peerage, just published.]

Six Children at one Birth.—On the 30th December, 1831, the wife of Dernian Ploson, in the village of Dropin, in Bessarabia, was delivered of six daughters, all living, and only a little smaller than the usual size of children at birth, with the exception of the last, which was much the least. The mother was not quite twenty years of age, and of a strong constitution. The whole six children lived long enough to be baptized, but died on the evening of the day of their birth. The mother subsequently suffered indisposition, but got quite well.—[Gazette Medicale.]

William Hepplewhite, an apprentice on board the Indian, belonging to Shields, last year purchased and old clothes chest for 3s., which on being examined by the Custom house officers in Cork, where the vessel is now delivering a cargo, was discovered to have a false bottom, under which were found upwards of £2000.—[Durham Chronicle.]

SUMMARY.

Daniel Webster has accepted, as we learn from the National Gazette of yesterday, an invitation from the Franklin Institute of Philadelphia, to deliver an address before that body in the last week of November next.

APPOINTMENT BY THE PRESIDENT.

R. B. Taney, Esq. was yesterday appointed Secretary of the Treasury of the United States. On accepting this appointment, Mr. Taney resigned the office of Attorney-General.—[Globe, of yesterday.]

We have before us a copy of the specification of the materials and mechanical execution of the proposed new Custom House in this city. The building is to be 177 feet long, and 89 feet wide; and its form and order of the building to be similar to that of the Parthenon at Athens. It is to stand on a basement story, ascended by nineteen steps from Wall street and six steps on Pine street. There are to be eight Grecian doric columns at each front, and fifeen columns and antæ on each side attached to the walls. There is also to be a second row of six smaller columns back of and parallell with those of the main front, leaving a space of ten feet between the two rows; and nine feet between the inner row and the front wall of the building. Back of the two extreme columns of the inner row there are to be two antæ, and six antæ attached to the walls of the rear front, leaving a space of eight feet and a half between the columns and antæ. There will thus be twenty-four outside columns, five feet eight inches diameter at the bottom, and thirty-two feet high, including the capital, and eighteen antæ on the two sides, of the same height, five feet wider and three feet nine inches projection from the walls.—The six inner columns of the main front will be four feet eight inches diameter at bottom, and the antæ to correspond. The building is to be two stories high, except the great business hall part of which is to be vaulted as high as the roof will permit and its centre finished with a dome sixty-two feet in diameter. This hall will occupy the centre of the building, and will be one hundred and fifteen feet long, leaving a small vestibule at each end to enter from. It is to be seventy-seven feet wide in the *centre part*, which is a circle of seventy-feet diameter, with the length and breadth of the room extending beyond its circumference to these dimensions; and the four parts so extended beyond the circle are thirty-three and a half feet wide, leaving six rooms and three circular staircases in the four corners, the two largest rooms to be twenty-four by twenty-one feet each, besides a square staircase in the rear, and three vaults for papers at the two ends of each vestibule. The same division of the room is made in the second story. Nearly the same number, shape, and size of rooms are had in the basement, as above in the other stories, leaving all the area of the same shape and size as the great hall immediately about it; with the addition of sixteen fluted doric columns to support the vaulting and the pavement under the dome of the great hall.—[Evening Post.]

U. S. Ship St. Louis.—The following is a list of officers attached to this vessel, which went to sea yesterday afternoon.

Commander—Thomas Moore Newell, Esq.
Lieutenants—1st, Wm. S. Harris; 2d, Wm. C. Wetmore; 3d, Samuel Mercer; 4th, Oscar Bullus; 5th, Richard H. Morris.
Surgeon—John Wiley.
Acting Sailing Master—J. Wentworth Cox.
Purser—Francis G. McCauley.
Assistant Surgeon—Euclid Borland.
Midshipmen—Thomas W. Melville, John G. Todd, N. E. Lane, James W. Revere, Wm. W. Smith, T. A. M. Craven, E. C. Ward Jr., Thomas M. Mix, John N. Maffit, Samuel Garrison, Charles Elliot, James A. Doyle, M. Hunt, Jr., F. Oakes, W. E. Newton, J. E. Duncan.
School Master—Felix Giendicella
Gunner—Francis Gardener.
Boatswain—John Ferris.
Sail Maker—Thomas J. Boyce.
Purser's Steward—A. O. Whelpley.

OYSTER STANDS.—In New Orleans these indispensable contributors to good living are, it seems, made a source of municipal revenue. The Mercantile Advertiser of 5th inst. gives the names of twenty-one let at rates varying from $180 to $900, producing an aggregate revenue of $9455.

Extract of a letter dated Apalachicola, Aug 28th 1833.—"Thinking it may be a matter of some interest to your eastern friends, shipping in this direction, to fully understand the facilities of transporting all kinds of goods from this port to the interior, I am thus particular. At present we have five steamboats which run constantly between this place and Columbus, Geo. affording an opportunity to forward with cheapness and despatch, goods to any part of the country bordering on the Apalachicola & Chatahoochee rivers, and a very large business is now doing between this port and the interior. The Cotton crops are very abundant, and should the sea island continue good, as there is now every prospect of, the quality will be superior."

Naval Architecture.—A gentleman in this city, well known for his attachment to science, and patronage of the useful arts, is building a sea schooner of about 200 tons, intended to ply from this port, on the plan* and under the direction of Mr. Annesley. The model is allowed to be very elegant. As she now stands for planking, she presents a most singular and interesting appearance. Mr. Annesley's system must, we think, eventually succeed, as his vessels are seaworthy to the last, may be made to any model, and possess qualities that are indestructible by ordinary wear and tear.—[Albany Daily Adv.]

* The U. S. schooner Experiment was built upon plan.

[*From the Norwalk Gazette.*]

INDIANS.—Some of our heavy land-holders have been alarmed during the past week by the appearance among us of three Indians of the Mohegan tribe, who came to lay claim to a tract of land hereabouts, upon the strength of tradition in the tribe, that they once owned a piece, which was not sold but leased to some persons of the name of Dixon and Townsend.—They further stated that the land was contiguous to, or embraced "the Old Orchard," which has led to much speculation respecting the location of the Old Orchard, and who at present was the unfortunate possessor. After sauntering about two or three days, they disappeared, as wise probably as when they came.

A friend has handed us the following memorandum of the cost of such of the original township of Norwalk as lay between Saugatuck and Five Mile Rivers, extending an Indian's day's walk into the country:

From Norwalk river to Saugatuck river, and one day's walk into the country:—8 fathoms wampum, 6 coats, 10 hatchets, 10 hoes, 10 knives, 10 scissors, 10 penknives, 10 fathoms tobacco, 3 kettles, 6 hams, about 10 looking glasses. From Norwalk river to Five Mile river, and as far as an Indian can walk in a day in the country:—10 fathoms wampum, 3 hatchets, 3 hoes, and when the ships come* 6 glasses, 12 tobacco pipes, 3 knives, 18 drillers, 10 needles.

* Whether the 'ships' ever 'came,' does not appear.

The London Athenæum states that Lander, the African explorer, who has lost 25 of his party, was expected in England in September or October, and the letters from him are said to speak very confidently of the ultimate success of the commercial objects of the expedition. Nothing, however, in a mercantile point of view, could compensate, we should think, for such a fearful expenditure of human life as has already attended this wild undertaking. Every succeeding expedition into this fatal country seems to be more disastrous than those which preceded it; and though the cause of science has been in some degree promoted by recent discoveries, yet to what does this extension of our geographical knowledge amount, when the climate of the regions explored is so destructive to European constitutions, and the people that inhabit them so rude and barbarous, that while these considerations forbid the idea of commercial intercourse, the gratification of curiosity is the only reward of the perils encountered.—It is one thing with Denon and Belzoni to trace the mouldering vestiges of civilization in those parts of the same continent, where, as man once attained a high degree of refinement, he may again again assert the better qualities of his race—and another to plunge among hordes of primitive barbarians, which Providence would almost seem to have placed in such an inaccessible country for the very purpose of shutting them out from the intrusion of the rest of the world. Yet, while it is lamentable to think of so many noble and adventurous spirits—men that would give soul to any enterprize—lavishing energies that might be more usefully applied, in such a hopeless cause—one cannot withhold a full and proud, though most regretful tribute of admiration, to that undaunted courage, that most indomitable ardor of enterprize, which urges these British adventurers upon a fate so certain and so melancholy.

A spot on the sun was seen in this town yesterday, for the first time since the Spring. It probably entered on the sun on Wednesday, and will occupy about a fortnight in crossing his disc. It is quite small, and cannot be seen without a telescope.

Perhaps it may be remembered that the summer of 1816 was one of the coldest ever experienced in New England; a severe frost having occurred in every month, proving destructive to the hopes of the agriculturist, and 'causing as much loss as the embargo and war.' This remarkable coldness was generally ascribed to the immense spots visible the whole summer on the sun, which were sufficiently large to be seen through a piece of blackened glass, and were ascertained to cover about one third of his surface. But how shall we account for the almost equal coldness of the summer of 1833? It cannot be ascribed to the same cause as that of 1816, as during the last four or five months we have not been able to perceive any spot, and the whole surface of the sun has appeared, even when viewed through a powerful telescope, clear and serene.—[Newport Mercury.]

The following extract from "Smith's History of Canada," would almost induce a belief that the awful visitation of 1832 was not the first appearance of cholera on this continent. The author says:—

"Early in the spring of this year a fever of the most malignant and epidemical kind broke out at Quebec, and generally throughout the country. It was called the purple fever, and so destructive was it, that thousands died in the course of a few days."

The discoloration, and fatality of the disease, (which occurred in 1710) are two features strongly resembling Asiatic Cholera.

FOREIGN INTELLIGENCE.

By the Britannia, from Liverpool, we have our London files to 16th ult., and by the Poland, from Havre, we received on Saturday our Paris papers to the 17th ult. Such extracts as possess ordinary interest are annexed. The quarrel in Portugal is not yet settled, Pedro not being in force to move from Lisbon for the relief of Oporto, which was still beleagured and closely pressed by the Miguelites.—Of Miguel himself we have no tidings.

The disturbances in parts of Switzerland were pacified by the energy of the Diet, without the intervention of foreign troops.

FALMOUTH, Aug. 13.—The Corsair yacht arrived here this morning from Lisbon, which place she left on the 1st inst. The following news will be interesting, and will show the state of the public mind in the city. Don Pedro was publicly walking about with the greatest confidence, unarmed and unguarded, and was greeted with the warmest acclamations. A circumstance occurred on his landing which made him at once popular with the people. When he was stepping from the barge on shore, some of the police endeavored to clear the way with their swords, when he called on them to put up their weapons, and taking out his own sword, flung it into the sea. About 800 police or militia had been raised for the protection of the city. The behavior of all classes was beyond all praise.

The conduct of Don Miguel's police had excited a great deal of sensation at Lisbon. It appears that the Duc Cadova, with about 3000 police, after they had fled from Lisbon, retreated to Caldas, about 25 miles north of Lisbon, and sacked the place for four hours, committing the greatest depredations on the persons and property of the inhabitants. On the 31st July they were on the road to Luceria.

A division of Don Miguel's troops, about 1500, had forded the Tagus at Valoda, near Santerim, and a steamer was sent up by Don Pedro to negotiate with them. It was generally supposed that they would turn in favor of the young Queen.

The Corsair called off Oporto on the 5th, but nothing of importance had occurred since our last advices. The Miguelites, however, continued to harass the city by continually firing on the town and at all the boats which came within the range of their guns. At Oporto they were anxiously expecting that the lines of Don Miguel would be broken by troops from Lisbon. No movement had taken place at Lisbon for that purpose, and, in the present state of affairs, it does not appear likely that a sufficient force could be collected by Don Pedro. The contending forces at Oporto must therefore fight it out.

The Donna Maria was cruizing off Oporto.

The Committee of the Parisian Association in favour of the press have sent 2000 francs to the office of the *National*, in aid of the payment of the fine to which that Journal was condemed on Saturday. The Central committee of the Association of the Departments have remitted 500 francs for the same object.

The Brussels papers state, that at Charterey, on the 8th August, 38 persons were drowned in a moat. This melancholy accident happened in consequence of a sudden irruption of water from an ancient aqueduct, which in less than two minutes rose above 70 feet.

PARIS, MAY 13.—The Courier Francais gives the following as a communicated note:

An English journal having announced that M. Antonio Carlos d' Andrada had arrived from Rio Janeiro, commissioned to invite Don Pedro to return to that city, where, it was said, a party was anxious to receive him, we are authorised to declare this is a fiction, invented to divert Don Pedro from the Regency of Portugal. Brazil is by no means desirous of the return of this Prince, whose abdication was voluntary; and M. d'Andrada would never undertake a mission to recall him, having himself been imprisoned, and afterwards exiled, by the arbitrary decree of Don Pedro, when he dissolved the Constituent Assembly of Brazil, of which M. d'Andrada was one of the most distinguished Members.

The Munich Gazette expresses a hope that the Congress of Toeplitz will restore peace to the world, by setting bounds to the spread of constitutional opinions. After recapitulating the various agitations by which Europe has been disturbed in consequence of revolutions, it points out to the Sovereigns the three principal points which call for their attention and interference;—they are Portugal, Italy, and Spain.

PRUSSIA.

A letter of the 1st inst. from Berlin, gives the following as the principle questions to be discused at the interview between the Emperor of Austria and the King of Prussia:—1. The means of controlling the Constitutional Chambers of Germany without exposing the country to a revolution.—2. The censorship and freedom of the press.—3. The Universities:—4. A treaty on the commerce and custom duties of Prussia.—5. The occupation of Frankfort, and the number of troops that Austria and Prussia are to send as their contingents, without exciting jealousy on either side.—The question of Belgium, so far it relates to Luxembourg and the Germanic Confederation.—7. The question of Poland—but, as Russia is a party interested in this, it is said that Count Orloff, on his return from Constantinople, will be sent to Teplitz to treat with the two monarchs.

To this series is to be added, whatever the Berlin and Hamburgh papers may say, that the Portuguese question and the treaty to be formed between Austria and Prussia for opposing on the one hand, the Anglo Gallican alliance, and on the other, to guard against the Russian Cabinet, which, notwithstanding the harmony that at present subsists between the Courts of St. Petersburgh, Vienna, and Berlin, gives umbrage to the other two Cabinets. On several of the above questions the King and Emperor entirely accord; these are those which relate to the Constitutional Chambers, to Luxembourg, and Poland, but they are not so with regard to the Universities, to the Customs, or the occupation of Frankfort; and it is in consequence of the difficulties which arise out of these latter questions that the interview has been agreed upon.

Charles X., it is said, has addressed a letter to the Sovereigns assembled at Toeplitz, expressing his surprise at not having been called to the Conference about to be held in that town. He declares that the difference which have occurred between him and his subjects have not made him lose his right of being a member of the Holy Alliance, in conjunction with the Sovereigns, his former allies. The abdication which he signed with his son, in favor of the Duke of Bordeaux, not having been accepted by France, ought to be considered as null and void. He consequently claims the full execution of the guarantees stipulated by the treaty of 1815.—[Temps.]

The Frankfort Journal gives the following extract of a letter of the 30th ult. from St. Petersburgh:—

"Several foreign journals have lately talked of a journey of the Emperor in foreign states, upon political affairs of the highest importance, but we believe that we can confidently assert that there is no foundation for these reports, and that his Majesty will not quit his own diminions."

SPAIN.

MADRID, August 3.—"The King is still in a suffering state, although rather better. For three days he kept his bed, but yesterday he was able to sit up. The Government has received intelligence of Don Carlos having placed himself at the head of Don Miguel's staff. An autograph letter complaining of this act had been addressed by King Ferdinand to his nephew. This letter has only revived the misunderstanding that has existed between our Government and that of Don Miguel, and a rupture between the two Governments appears to be inevitable. In fact, by a second note sent off three days ago to Lisbon, our two Ambassadors have received orders to quit that capital in 24 hours, and they are expected here in three or four days.—Our Gazette has ceased to style Don Miguel King, and no longer designates the troops of Donna Maria by the name of rebels.

MADRID, Aug. 6.—By a royal decree, Don Josef Manuel de Anjona, Minister of the Council, has been appointed Superintendan, General of Police.

SWITZERLAND.

Extract of a letter of the 10th inst. from Geneva:

"The complete pacification of Switzerland may now be considered as very near at hand, thanks to the unexpected energy displayed by the Diet, and its determination to occupy the whole of the cantons of Schwytz and Basle, until the fate of these two states be definitely settled. The hypocritical disavowal of the Conference of Schwytz is only a new fact to be added to the history of the intrigues of the Sarnean faction. A revolutionary manifesto was to appear if the attempt of Abyberg succeeded, and papers exciting to insurrection had been circulated in great numbers in the cantons of Lucerne and Berne. The Diet has duly appreciated the act of submission forced from the oligarchs of Schwytz.

In the spring of 1798, as in the autumn of 1822, these primitive Swiss, who boast of loyalty and patriarchal virtues, lulled asleep the vigilance of their enemies by capitulations, which they violated as soon as they felt strong enough to commence hostilities. The massacre of Nidwald, on September 9th, 1789 which became a subject of imprecation against the Directories of France and Switzerland, can be imputed only to the traitors who had misled the prevailing party by a foreign submission, and tore to pieces the act of amnesty. The fear of a foreign intervention appears now to have entirely subsided. The Austrians have hitherto made no movement towards the frontiers of the Tesin and Grisons. The Governor of Neufchattel has lately set out for Cologne, leaving to his faithful allies of Sarnen all the responsibility of the first attempts, in which he would have subsequenly acted a part, in the name of his master, if success had attended the wishes of the Holy Alliance. The Ministers of Austria, Prussia, and Russia, assembled at Baden, have, it is said, addressed a peremptory note to the Diet, which appears to have answered it with dignity as well as energy. The French Ambassador, on the contrary, has expressed a lively interest in the national cause, and much devotedness to the Chiefs of the regenerated cantons. The Canton of Valais has hitherto made no hostile demonstration. On the least indication of treachery, three or four thousand men from the canton of Taud could occupy the country from St. Maurice to Gondo.—We learn from the Basle, that the consternation produced by the events of the 3d and 4th inst. has been followed by general dissatisfaction with the government. M. Burkhard, the burgomaster, has taken refuge on the French territory, in order to escape the popular vengeance. The diet seems to have come to the wise resolution of maintaining an army on foot of 22,000 men, until the country be entirely pacified, and securred against the danger of foreign intervention.

The following is an extract from the Zurich Gazette:

"The Ambassadors of Austria, Prussia, Russia, Sardinia, and Bavaria, have arrived here, and made a visit to the President of the Diet, with whom they held a conferenee, which lasted an hour: they set off again next morning at eight o'clock. The conference did not assume an official character, but these gentlemen expressed great interest in the men of Basle.—They inquired whether, in case of necessity, force would be employed, and received an answer in the affirmative. They complained of the interference of the Poles in favor of the people of Liestal; but it was explained to them, that as the people of Basle were enabled by their money to procure assistance of every description, those of Liestal were entitled to obtain succour wherever they could find it. The Ambassadors talked loudly of the Compact of 1815. They were told in answer, that it was bad, but sufficed to enable Switzerland to assume a respectable position in relation to foreign states. There was no discussion on the subject of Schwytz. The conference terminated with civility, because a tone of vigor was adopted.

AN INTERESTING AND USEFUL MAP.

A friend of ours has now in a state of forwardness, a Map upon which will be delineated nearly all the Railroads now chartered in the U. States. It is designed to show the *present* contemplated connexion of the different lines, as well as where others may hereafter be constructed to connect with them. It will be completed in a few weeks, and may be had either in sheets, or put up in morocco for pocket maps, in any quantity, by applying to the subscriber.

D. K. MINOR,
35 Wall street.

New-York, August 14, 1833.

AMERICAN INSTITUTE.

☞ THE Sixth Annual Fair of the American Institute will be held in the city of New-York, at Masonic Hall, on Tuesday the 15th of October next, and continue three days.

Premiums, consisting of Diplomas, or Medals, will be awarded, as usual, for such articles of American production, as shall be adjudged superior either in material or workmanship.

As a new impetus seems to have been lately given to American industry, it is confidently expected that the Fair announced for October next, will present still more decisive evidence of the advancing condition of our agriculture, our manufactures, and the arts, than any of those which have preceded it.

Such ingenious and useful machinery as may be conveniently transported, and put in operation, will give interest and spirit to the occasion.

Each article should be labelled with the name of the manufacturer, or producer, and with the agent's name, and number, in this city.

The design is to inform buyers where they can supply themselves with the best articles In this way, by means of former Fairs, many excellent workmen have become better known and have obtained permanent and profitable customers, who, while they have been better served, have at the same time rewarded and stimulated American skill and industry.

Articles entered for premiums must be delivered as early as Monday, the 14th of October.

More particular notices will be published previous to the Fair. For any other information which may be desired, apply to either of the Managers, in person or by letter.

JAMES LYNCH,
ANDREW WILLIAMS,
EDWARD T. BACKHOUSE,
CLARKSON CROLIUS, Jr.
WM. F. PHYFE,
JOHN SAMPSON,
JOSEPH TITCOMB,
JARED L. MOORE,
GEORGE BACON,
} Managers.

New-York, July 4th, 1833. A29 tl3 oct R J

☞ TOWNSEND & DURFEE, of Palmyra, *Manufacturers of Railroad Rope*, having removed their establishment to Hudson under the name of *Durfee, May & Co.* offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J B. Jervis, Eng. M. & H. R. R Co., Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, January 29, 1833. F3 tf

NOTICE TO MANUFACTURERS.

☞ SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 10d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.—August 15, 1833. A29 tf RM&F

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keep constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. L. Brower, 322 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practical, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J23 1am H. BURDEN.

ENGINEERING AND SURVEYING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Te escope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker, No. 9 Dock street,
Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee with the following information The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to later al angles of any simple and cheap instrument that I have ye seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Superintendant of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. B. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.,
Germant. and Norrist. Railroad

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SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality, warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, J31 6t corner of Maidenlane.

FOR SALE,

☞ ATLANTIC JOURNAL AND FRIEND OF KNOWLEDGE—A Quarterly Journal, by Professor Rafinesque, of Philadelphia, begun in the spring of 1832, with wood cuts, &c dedicated to Historical and Natural Sciences, Botany, Agriculture, &c. at one dollar per annum.

MEDICAL FLORA OF THE UNITED STATES, in 2 vols with 100 plates, containing also the economical properties of 500 genera of American plants. $3.

MANUAL OF AMERICAN VINES, and Art of Making Wines, with 8 figures. 25 cents.

FISHES AND SHELLS OF THE RIVER OHIO, 1 dollar

AMERICAN FLORIST, with 36 figures—price 36 cts.

*** Orders for these works, or any other of Professor Rafinesque's, received at this office. A9 tf J M & F

TO STEAMBOAT COMPANIES.

☞ PROFESSOR RAFINESQUE, of Philadelphia, offers his services to render steamboats incombustible, and not liable to sink, even by the bursting of boilers, or striking against snags, sawyers and rocks. This will save many boats, much property, and the lives of hundreds every year. Those who neglect this easy improvement, deserve to be neglected and deserted by the public as unmindful of safety. Apply, post paid. S1 R J M M & F

TO RAILROAD COMPANIES.

☞ PROFESSOR RAFINESQUE, of Philadelphia, will undertake to build CARS that will carry along their own railway, and may be used on level M'Adam roads. They will save ten millions of money to be wasted on 1000 miles of iron railroads to be laid in the United States within a few years and dispense with tracks and double tracks. These Cars may be drawn by horses or steam. He claims to have discovered them ever since 1825, by his caveats filed in the Patent Office Apply, post paid. S1 R J M M & F

INCOMBUSTIBLE ARCHITECTURE.

☞ INCOMBUSTIBLE dwelling-houses and buildings of all kinds devised or built in New-York, or any part of the United States, as cheap as any other combustible buildings Actual buildings and houses rendered incombustible at a small additional expense.

SHIPS of all sorts, and Steamboats, rendered incombustible, and not liable to sink, at a small expense.

For sale, 10,000 lbs. of ANTIGNIS, or Incombustible Varnish, at one dollar per lb.

Apply to C. S. RAFINESQUE, Professor of Hist. and Nat. Sciences, Chemist, Architect, &c. in Philadelphia, No. 59 North 6th street. A pamphlet given gratis.

References in New-York.—Mr. Minor, Editor of the Mechanics' Magazine; Messrs. Rushton & Aspinwall, Druggists

Editors in the city or country, copying this advertisement, will receive a commission on any contract procured by their means. S1 R J M M & F

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Bleecker street,
New-York.

☞ RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlæm Railroad, now in operation.

J25 tf

NOVELTY WORKS,

Near Dry Dock, New-York.

☞ THOMAS B. STILLMAN, Manufacturer of Steam Engines, Boilers, Railroad and Mill Work, Lathes, Presses, and other Machinery. Also, Dr. Nott's Patent Tubular Rollers, which are warranted, for safety and economy, to be superior to any thing of the kind heretofore used. The fullest assurance is given that work shall be done well, and on reasonable terms. A share of public patronage is respectfully solicited. m13

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete, at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

INSTRUMENTS.

SURVEYING AND NAUTICAL INSTRUMENT MANUFACTORY.

☞ EWIN & HEARTTE, at the sign of the Quadrant, No. 53 South street, one door north of the Union Hotel, Baltimore, beg leave to inform their friends and the public, especially Engineers, that they continue to manufacture to order and keep for sale every description of Instruments in the above branches, which they can furnish at the shortest notice, and on fair terms. Instruments repaired with care and promptitude.

For proof of the high estimation on which their Surveying Instruments are held, they respectfully beg leave to tender to the public perusal, the following certificates from gentlemen of distinguished scientific attainments.

To Ewin & Heartte.—Agreeably to your request made some months since, I now offer you my opinion of the Instruments made at your establishment, for the Baltimore and Ohio Railroad Company. This opinion would have been given at a much earlier period, but was intentionally delayed, in order to afford a longer time for the trial of the Instruments, so that I could speak with the greater confidence of their merits, if such they should be found to possess.

It is with much pleasure I can now state that notwithstanding the Instruments in the service procured from our northern cities are considered good, I have a decided preference for those manufactured by you. Of the whole number manufactured for the Department of Construction, to wit: five Levels, and five of the Compasses, not one has required any repairs within the last twelve months, except from the occasional imperfection of a screw, or from accidents, to which all Instruments are liable

They possess a firmness and stability, and at the same time a neatness and beauty of execution, which reflect much credit on the artists engaged in their construction.

I can with confidence recommend them as being worthy the notice of Companies engaged in Internal Improvements, who may require Instruments of superior workmanship.

JAMES P. STABLER,
Superintendent of Construction of the Baltimore and Ohio Railroad.

I have examined with care several Engineers' Instruments of your Manufacture, particularly Spirit levels, and Surveyor's Compasses; and take pleasure in expressing my opinion of the excellence of the workmanship. The parts of the levels appeared well proportioned to secure facility in use, and accuracy and permanency in adjustments.

These Instruments seemed to me to possess all the modern improvement of construction, of which so many have been made within these few years; and I have no doubt but they will give every satisfaction when used in the field.

WILLIAM HOWARD, U. S. Civil Engineer.

Baltimore, May 1st, 1833.

To Messrs Ewin and Heartte—As you have asked me to give my opinion of the merits of those Instruments of your manufacture which I have either used or examined, I cheerfully state that as far as my opportunities of my becoming acquainted with their qualities have gone, I have great reason to think well of the skill displayed in their construction. The neatness of their workmanship has been the subject of frequent remark by myself, and of the accuracy of their performance I have received satisfactory assurance from others, whose opinion I respect, and who have had them for a considerable time in use. The efforts you have made since your establishment in this city, to relieve us of the necessity of sending elsewhere for what we may want in our line, deserve the unqualified approbation and our warm encouragement. Wishing you all the success which your enterprize so well merits, I remain, yours, &c.

B. H. LATROBE,
Civil Engineer in the service of the Baltimore and Ohio Railroad Company.

A number of other letters are in our possession and might be introduced, but are too lengthy. We should be happy to submit them upon application, to any persons desirous of perusing the same. m30

FROM CANTON.—We are indebted to Captain Bancroft of the ship Boston for Canton papers to the 20th April. They contain some items of interest.

The Chinese report that intelligence has reached Canton, of the king of Cochin-China having despatched a letter to his Imperial Majesty the Emperor of China, to which he has replied, concerning a foreign ship which has appeared upon the coasts of the former potentate, and from which some persons have visited the shore endeavouring through the medium of the Chinese character to establish a commercial connection with the country upon terms of amity and good feeling. This vessel which has been conjectured to be the missing *Sylph*, is more likely to prove the U. S. ship *Peacock*, which left here some time since, as was reported, upon a voyage of the kind, though no official information was given respecting the destination of that vessel. We trust that there is no serious ground for apprehension respecting the Sylph; she may have been detained by a variety of causes of which we here can know nothing: had any serious accident happened to her, the intelligence would no doubt have reached Canton officially, long ere this.

On the 8th Dec. was discovered by the officer in command of H. N. M. schr. "Pollux," a shoal in the Carimata Passage, the middle of which is in lat. 3° 25 30" South, and long. 109° 40 50" East of Greenwich. The extent of this shoal is about 3.4 German miles, lying N. and S. It is supposed to be the same as that placed on some charts as the "Enhuiven Sand."

A new species of portable gun or harquebuss has been invented, which is carried by two men, and which has been found to be very effective in the late rebellion near *Leen chow*; the governor accordingly, approving of the new weapon, orders those now making to be prepared immediately, and the troops instructed in their use without delay.

For those who wish to know "life in China," we add a few more amusing extracts.

A RED paper slip published at Canton, contains the following account of "fashionable arrivals," and an announcement of the Imperial condescension towards the Tsung-tuk and Foo-yuen.

The Wan-wae, Lew-tih-chang, having returned from a mission to the court at Peking, brought as presents to the Governor and deputy Governor the word "Happiness" inscribed with the vermilion pencil, i. e. in the Emperor's own hand writing, and portions of deer's and tiger's flesh; in consequence of which all the civil and military officers of the city have sent in their compliments and congratulations.

Literal Translation of an Ink-Maker's Shop-Bill.—At the Shop *Shun-wang*—very good Ink—fine, fine,—Ancient shop—grandfather, father and self make this ink,—fine and hard, very hard,—picked out, very fine and black, before now,—sell very good Ink, prime cost very high. This ink is very heavy,—so is gold. No one makes like it. Others who make ink, make it for money, and to cheat; I only make it for a name. Plenty of gentlemen know my ink. My family never cheats, always bears a good name. I make ink for the "Son of Heaven," and all the mandarins round. All A-kwan-tsae's (gentlemen) must come to my shop and know my name!

R. [We have long been in the habit of considering Mr. Warren, of No. 30 Strand, London, and the Lottery Office keepers in America, as the princes of the noble art of "puffing," but have been recently convinced that our friends the Chinese leave them far behind. The following translation of an ink-maker's card, will vie with the most perfect of the celebrated Blacking-manufacturer's tributes to the charms of his "liquid jet."

A GREAT CAVERN DISCOVERED IN IRELAND.—A correspondent of the Tipperary Free Press, gives an account of a Magnificent Cave, lately discovered near the town of Caher by some workmen employed in quarrying stones. The first indication of the subteranean edifice, was an opening in the rock, about 20 feet from the surface capable of admitting the body of one person. Prompted by curiosity, one of the men entered the opening, and proceeded along a sloping declivity which terminated, at the distance of 40 or 50 feet from the entrance, in an abrupt descent of about 20 feet. Unable to advance further he returned, and having procured a ladder, he, accompanied by two or three of the workmen, proceeded to explore the cavern. Having descended the ladder they proceeded along a passage about 300 yards in length, 40 feet in breadth, and generally between 30 and 40 feet in height, at the termination of which a superb cavern, nearly one mile in circumference, presented itself to their view. This grand cavern seemed to be supported by about 150 crystal columns, varying in height from 30 to 40 feet, and in diameter from 1 to 8 feet. In the middle of this spacious cavern is placed a crystalized petrifaction exactly resembling a table, about seven feet in length and two in breadth, surmounted with crystal candelabras of the most curious construction." The subject would be endless were I to enumerate the variety of surprizing creations which nature has displayed in this subterranean palace. At the distance of 700 or 800 yards, and immediately opposite the entrance, lies another passage, which led them into what they called the lower cave, which is about three-quarters of a mile in circumference, supported, like the former cave, by lofty pillars, and decorated with the most fanciful productions. Having proceeded through this cave they discovered an aperture, which having ascended by a flight of eight steps, a sight presented itself to their view capable of impressing the strongest emotions of surprize and astonishment on the mind of the spectator. It would be useless for me to attempt a description of this astonishing hall, as nothing less than the descriptive powers of a Sir Walter Scott could render it even moderate justice; suffice it to say, that it is about three miles in circumference, supported, like the other caves, with innumerable pillars, and adorned with almost perfect imitations of all that art and nature presents to our view.—However, I cannot forbear remarking that in the centre of this magnificent hall, and depending from its roof, appears a petrifaction resembling the body of a horse, through which, at the distance of fifteen feet from the floor, issues a stream of pure water, which, after forming several evolutions on its crystalized bed, disappears, with hollow murmurings, at the furthest extremity of the hall. Through an opening to the right, in the last-mentioned hall they descended, by a flight of ten or twelve steps, to a cavern called the long cave, which is about one mile and a half in circumference, supported in like manner by superb columns, and adorned with many of the same imitations of nature and art. Amongst the imitations of art is a hollow crystalized petrifaction resembling a drum, which, when struck upon, produces a sound, the reverberation of which will continue for several minutes. Having proceeded thro' the last mentionod cave, they came to a fissure in its right side, which led them into what they called the cellar cave. This cave, unlike the rest, is not supported by pillars, not adorned with those productions of sportive nature for which the others are so highly appreciated; but the spectator is amply compensated for the absence of those ornaments by the view of a deep and river, which urges its subterranean course through the middle of the cave."

Discoveries of this kind, which are not uncommon in this country, many parts of it, like the limestone regions of Pennsylvania and Kentucky, being celebrated for their immense cavernous passages, extending sometimes for many miles in length, and spreading out in their various ramifications to an incredible extent, tend as much as any display of her power to awaken our reverenee for the mysterious operations of Nature. What a singular manifestation of her economy is that which hollows out those subterranean chambers, more vast than any human art can construct, more splendid than any human imagination can devise, which builds far beneath the surface on which we move abodes as bright as those we dream of in other worlds, where new glories of creation are to be revealed to us, and then leaves them tenantless; with no eye to kindle with admiration at the dazzling forms of beauty heaped in prodigal confusion along winding aisles and vaulted avenues that never echo to the voice of praise, with not even an animated creature to share their shelter, or a ray of Heaven's light to smile upon their solitary grandeur! The mud hut of the peasant is reared above their swelling domes, and centuries watch the prouder edifices of a city succeeding, while thousands wander homeless over roofs that might shelter their whole race, dreaming not that all the wealth whose profusion they envy in others, could never purchase a palace or a tomb like that beneath their feet. Decay comes not there. The frail structures, reared by human hands above, perish away from the earth and Time sweeps their very memory to oblivion. But there—grand, solemn, and enduring—there, still as when first shaped out by an Almighty hand, repose those silent temples. The hidden retreats of Nature, when man would pry into all her secrets, and revealed only from time to time, as if to show, that when—the farthest regions of the earth explored—he carries his view to other planets, there are worlds beneath his feet he dreams not of; Teaching him, perhaps, to study further the mysteries of his own being, before he would attempt to resolve those of that One, who is thus glorified in all his works, hidden and manifest.

THE TOMB STONE.

Moss covered stone! in this mysterious ground
I greet thee—sacred to God's hallowed dead—
While Evening's peaceful glories, streaming round,
On thee are shed.

Beside thee hath not sounded, for long years,
The mourning voice of friends,—now mouldering too:
O'er thee, no longer, maids, with pious tears,
Spring's first flowers strew.

Who shall thy slumbering tenant now make known?
A sculptured skull remains, his tomb to grace:
Worn is his epitaph;—by weeds o'ergrown
The name's faint trace.

To thee I fly from life's tumultuous noise,
When Evening o'er the woods her splendor flings:
Altar of hope where hover heavenly joys
On seraph wings.

MARRIAGES.

On Thursday evening, 19th inst., by the Rev. Dr. Berrrian. SMITH LAWRENCE, to CAROLINE, daughter of Samuel Betts, Esq.

On Tuesday evening, Sept. 24, by the Rev. Dr. Lyell, Mr. JOHN J. AYMAR, to Miss SARAH BABB, all of this city.

On Wednesday evening, the 25th inst., by the Rev Dr. McAuley, COURTLANDT VAN BUREN HASBROOK, of the firm of Holmes, Bailey & Co., of this city, to MARGARET, daughter of Robert Ainslie.

On Monday, the 23d instant, by the *Rev. J. M. Wainwright*, GEORGE C. DE KAY, to JANET HALLECK, daughter of the late *Dr. Joseph Rodman Drake*, all of this city.

In Owego, on Tuesday, 17th inst., by the Rev. Mr. White, Mr. Joseph S. Bosworth, Esq. of Binghamton, to Miss Frances E., daughter of Charles Pumpelly, Esq.

At Bridgewater, Oneida co., on the 13th inst., by the Rt. Rev. Bishop Onderdonk, John H. Smith, Esq. of Port Hope, Upper Canada, to Miss Augusta L., daughter of Isaac Woodworth. Esq.

DEATHS.

In this city, on the 25th instant, Mrs. ANN R. COLLINS, consort of Josiah Collins, of Edenton, North Carolina.

Last evening, of consumption, aged 19, EDWARD A. FIRTH son of John Firth.

Thursday evening, 19th inst., JULIA F., daughter of Walter Jaggar, aged 2 years and 11 months.

Friday morning, Sept. 20th, of a lingering illness, which he bore with christian fortitude and resignation, Mr. DAVID WEEDEN, in the 34th year of his age.

This morning, AQUILA PACA, son of George W. Giles, aged four years.

At Staten Island, on the 17th inst. Mr. JAMES S. PERINE, aged 37 years. While he lived he was respected and beloved by all who knew him; and his death is deeply lamented by a numerour circle of friends and acquaintances.

Last night, after a lingering illness, Miss ADELINE P. HART, daughter of the late Peter G. Hart, Esq. of this city.

Last evening, suddenly, JAMES MCCREA, in the 41st year of his age.

On the 24th instant, at the residence of his father, in Schenectady, after a very short illness, of Consumption, WILLIAM PORTER STUART, late of this city, a young gentleman of highly promising talents, universally respected and beloved by his acquaintances and friends; aged 21 years.

At Onondaga, New York, Mr. EDWIN K. SACKETT, eldest son of the late Samuel Sackett, of Brooklyn, Long Island.

At Albany, on Monday morning, Miss Elizabeth Phelps Sanford, aged 22 years, youngest daughter of Mr. Elihu Sanford, of this city.

In Wales, Erie co., suddenly, on the morning of the 14th inst. Gen. Joseph McClure, aged about 60, Postmaster at Franklinville, Cattaragus county. He was returning from Buffalo, where he had been on business, and while sitting in his chair he suddenly expired.

In Poughkeepsie, on Sunday the 22d instant, Mrs. SARAH THOMPSON, wife of Hon. Smith Thompson, in the 56th year of her age.

In Ohio, the Rev. President STORRS, of Hudson College.—He was a gentleman of great literary and scientific attainments, a scholar and a Christian. He filled the elevated station to which he was called with credit to himself and usefulness to the institution, and his loss will be deplored as a public calamity.

At Orange, N. J. on Sunday afternoon, of apoplexy, the Hon. ISAAC PIERSON, aged 65 years, late a Representative in Congress from that State.

At Williamstown, Mass., on the 19th inst., Mrs. CATHARINE, wife of Dr. David Rosseter, of this city.

On the 13th Sept. Mathias Valentine, of Westchester, aged 42 years.

At New Orleans, of yellow fever, on the 31st inst., ROBERT WATERMAN. jr.; son of Capt. Robert Waterman, of this city, aged 16 years

At New Orleans, on Sunday morning, PETER MARTIN, a native of France, but for many years a resident of Detroit.

At the same place, on Sunday, Mrs. CAROLINE CLARE, of Boston, aged 30, wife of Wm. Tufts, Esq. of the former place.

At the same place, on the 7th inst. of yellow fever, FRANKLIN M. FELLOWS, aged about 24, a native of Boston.

At the same place, on the 4th inst. WM. LYONS, a native of New Jersey.

At the same place on Friday last, in the 30th year of his age, the Rev. CARLISE LEIBIS, Pastor of the Evangelical Protestant Church of that city.

At the same place, on the 8th inst. of yellow fever, DANIEL PROCTOR.